

Architecture for Food

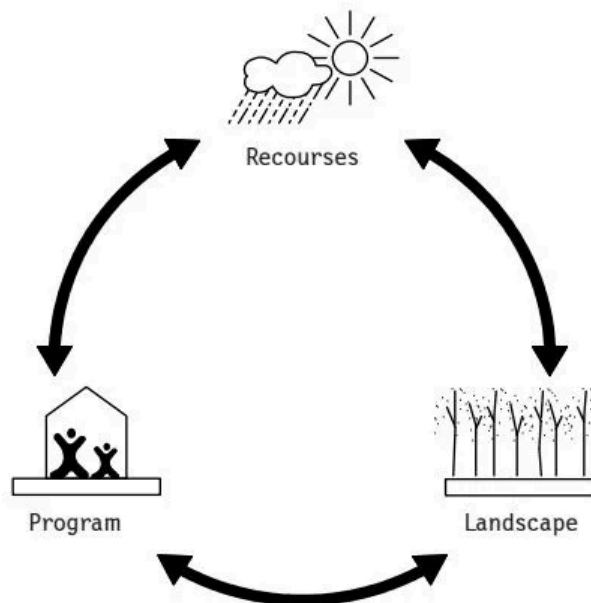
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Food buildings
Food landscapes
Culinary planning

Discovering city roofs for food production
Harvesting climbing fruits in the garden city
Business models for urban farming
Building metropolitan food valleys



Architecture for Food



Food and the city are inextricably linked. Since the creation of cities they have been formed by food production, processing and logistics, trade and of course food consumption. And certainly today, now that more than half of the world population lives in cities, the interconnectedness of cities with their food supply is more relevant than ever.

This new Magazine 'Architecture for Food' discovers the current and future world of food and cities. In and on buildings, in the urban courts and parks and in the city edges around the city. Space for food production and consumption, for food and recreation, for exposition or for research; Architecture for Food.

Since the first magazine of Architecture for Food, a lot has happened. A number of projects have been realized such as the COFCO Agricultural Demonstration Center in China. This Food Building forms the heart of the future Metropolitan Food Valley at Beijing and was built together with Dutch horticulture companies. A new generation of Chinese has been informed and trained in high-tech food production in the city since the opening of the 3-hectare building. (page 32)

Furthermore, close to Europe's capital Brussels in Belgium, we are realizing a next level for food production, namely on the city roofs.

With one hectare, the rooftop greenhouse Agrotopia will become the largest production, research and education center for vegetable growing of Europe. With this proud building made of glass and steel, urban food production takes a prominent place in the city skyline. Agrotopia will open its doors in 2019 for urban horticulturalists, food researchers and the general public. (page 8)

But also in the Netherlands we continue with Architecture for Food. Together with the Greenport West Holland and the Rotterdam Food Cluster, we have investigated how the entire food chain of horticultural businesses, training and logistics in the Rotterdam The Hague region can continue growing and expanding its leading position in the world. And how they can innovate new solutions for the rapidly growing urban world population into a true Metropolitan food culture. (page 58)

Finally, the largest food company in the Greenport West Holland asked us to design its new head office. Van Gelder Vegetable and Fruit wants an iconic food building to showcase its widest fresh assortment in the Netherlands. The heart of this Food Building is formed by the Food Experience Center. A spectacular space with rising food terraces and roof nursery where the Van Gelder assortment is grown, tested and tasted; The Van Gelder Taste Valley. (page 16)



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food from the



m above city





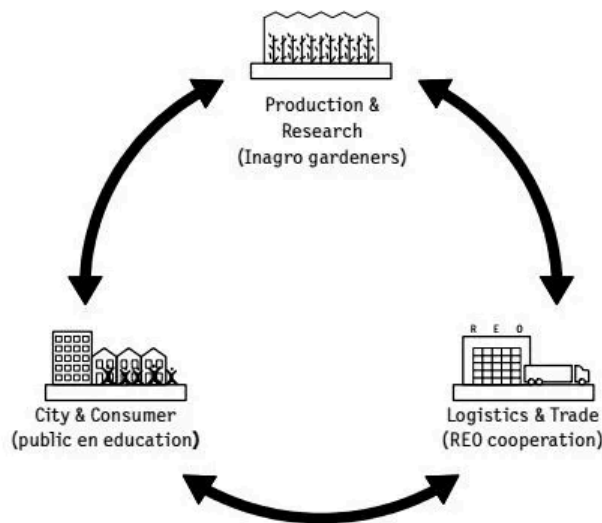


UTOPIA



Agrotopia

Discovering the roofs of the city for Food Production



Rooftop greenhouse Agrotopia is an ambitious project for research and demonstration of vegetable cultivation that will further connect Inagro, the Flemish institute for agriculture, to the agro-logistical sector and the food-consumer.

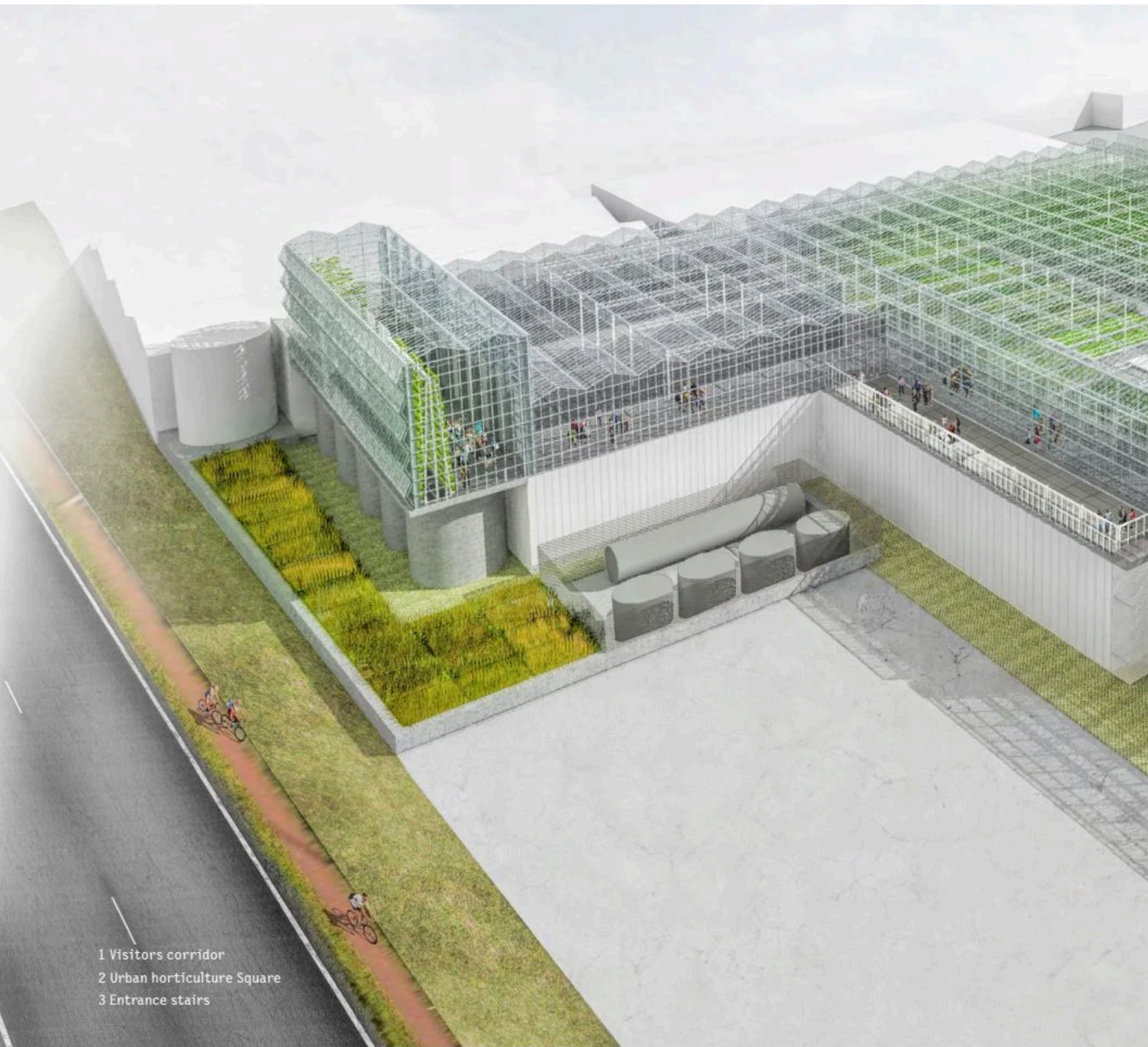
Rooftop greenhouse Agrotopia will become the proud Landmark of the Green Hub along the ring road of the city of Roeselare. The building will be realized on the roof of the vegetable and fruit wholesale market REO; the food logistical heart of West-Flanders. The innovative design will be an example for future food production within the city, intensified use of space, circular energy and water usage and sustainable horticulture.

The 9.500 sqm building houses high-tech research facilities for fruit-vegetable and leaf-vegetable cultivation surrounded by an educational routing for a wider public. As a result one can experience the cultivation of vegetables such as tomatoes and lettuce as well as peppers and strawberries in four different climate zones.

The building's grand entrance stairs lead to the newly introduced level where the Urban Agriculture Square and visitors facilities are located in the heart of the building. The Vertical Greenhouse Gevelserre contains a double height Greenhouse for the innovation of stacked horticulture solutions. The base of the Gevelserre contains the rainwater storage and a reed filter for residual wastewater treatment.

Rooftop greenhouse Agrotopia is a proud and transparent sculpture of steel and glass. Its architecture is defined by the thin greenhouse construction that silhouettes the sky, resting on the markets concrete base. In this way the building will establish a prominent position for Urban Agriculture on industrial roofs in the city skyline of Roeselare.

Construction will start early 2018 and the building will open its doors by 2020 to horticulturists, researchers and the wider public.

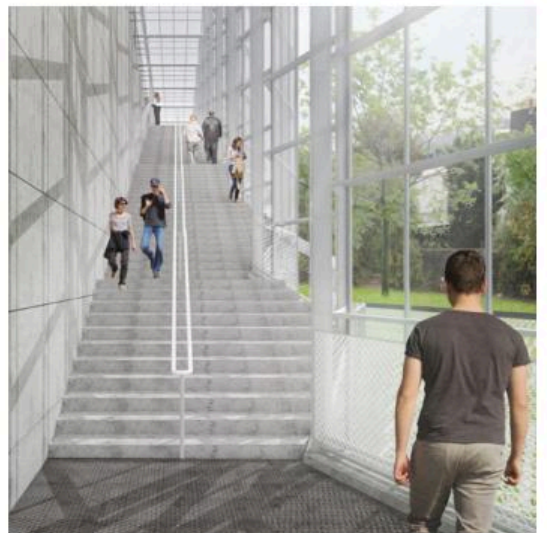



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- 1 Vertical farming
 - 2 Two crop LED system
 - 3 DFT leaf vegetables
 - 4 Exterior view
 - 5 Circular horticulture

1 2



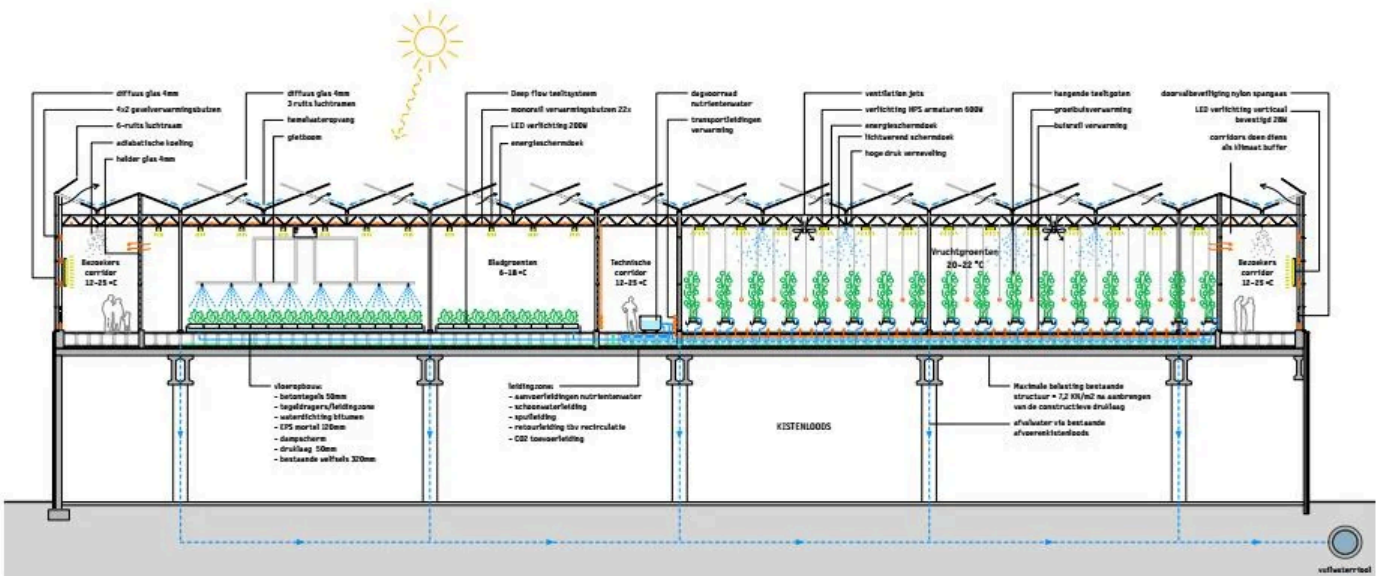
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Van Gelder Taste Valley

Terraced fruit and vegetable experience centre



The new Van Gelder vegetables and fruit Headquarters is situated at the Foodcenter Reijerwaard Ridderkerk. A unique Food experience Center with rooftop greenhouse creates a powerful entity with the logistical main building. We designed this iconic building that gives van Gelder a prominent place in the Greenport between the Market Hall and the Europoort.

Van Gelder supplies daily fresh food to top chefs, retailers and care institutions throughout the Netherlands and Belgium. Their largest AGF Food assortment in the Netherlands includes some 5.000 items, from typical Dutch to foreign exotic. In order to accommodate the growth of the company, 45.000m² of new construction has been chosen with a sustainable and innovative appearance.

The new headquarters consists of a main building with a sober and efficient design for processing and logistics. Heart of the Food experience Center on the representative entrance side is the van Gelder Taste Valley. A spectacular space inserted over the full

height of the building with rising food terraces that open into the Rooftop Greenhouse. Here, the vegetable and fruit assortment of Van Gelder is grown, tested and tasted. The tropical, mediterranean and moderate climate zones are carefully classified on crops; from peppers to pears, from avocado to strawberry. The intermediate floors with offices, auditorium and restaurant all have a view on the Taste Valley.

The differences in climate between the refrigerated main building (5–6°C), the offices (18–20°C) and the experience center and the nursery (15–35°C) require a well-appointed climate zoning. The layout is designed to ensure the well-being of employees and visitors and the energy performance remains optimal.

With the new building, van Gelder aims for a high degree of sustainability for the future: BREE AM excellent. Various innovations have been used such as large structural spans, (re)use of residual heat and water for the nursery, (re)use of biomass and the integration of solarpower roof.

- 1 Detail facade
- 2 Taste Valley
- 3 Rooftop production
- 4 Offices
- 5 Exterior view



1 2



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food in

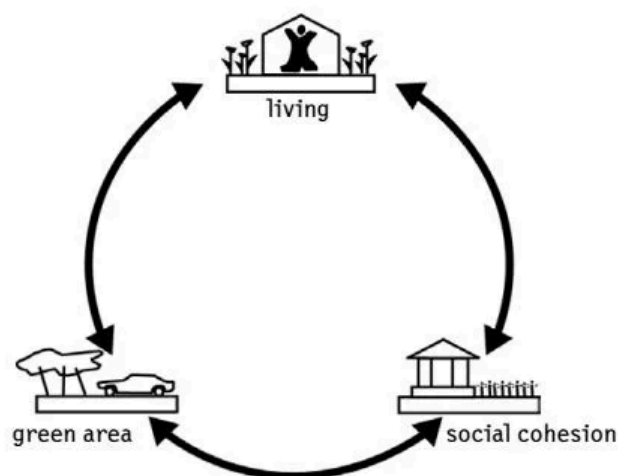


the city



Co-Housing Hoogvliet

Harvesting climbing fruits in the garden city



Co-Housing Hoogvliet houses three communities for families and one community for mentally disabled people. Each community is grouped around a garden for children at play, a community barbecue and growing food.
































Collective resources such as rainwater and compostable waste are used for watering and fertilizing this green oasis. The 'Garden Houses' of four to six homes are orientated towards the sun, the gardens and the nearby canal. Each collective is embraced by a growing green façade offering different flowers and fruits by the season.


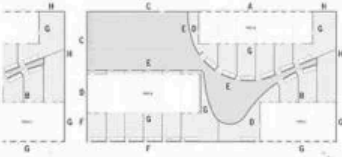































The project is located in the postwar garden city of Hoogvliet. This new town was planned to accommodate the growth of the city based on the social ecology of one type of family. This resulted in spatial character of repetitive apartment blocks in a sea of green public space with almost no private outdoor spaces. But nowadays the contemporary city has grown to a complex ecosystem of social

behaviours and relations with the green and natural surrounding of public spaces. Co-housing project takes the opportunity to reinterpret the ideal of the garden city to contemporary social and ecological conditions.

The new small collectives consist of around ten family houses with private gardens around a communal garden. Here room is created with simple green facilities for daily meeting opportunities. For instance space for rainwater catchment to water the gardens and wash cars and space for compostable waste. But also bicycle parking and mailboxes. The gardens are surrounded by a green façade. For this vertical garden a choice of green flowers, fruits and vegetables is developed together with the gardener of the communities. In this way today's social ecologies are connected in simple ways to the green and natural space of this Garden City.

1 Choice-poster from which residents choose their own planting

STORMVOGEL Nabuuerschop Hoogvliet Vestia - Estrade Projecten van Bergen Kolpa Architecten		BORDER GARDEN 			FLORAL GARDE
A	North-east sun, hedge adjacent to building, bordering on public area.	<i>lonicera japonica halliana</i>  <i>hedera colchica "dentata variegata"</i>  <i>hydrangea petiolaris</i> 			
B	North-east sun, hedge adjacent to building, bordering on private area.	<i>vitis coignetiae</i>  <i>wisteria sinensis "prolific"</i> 			<i>clematis tangutica</i> 
C	North-west and north-east sun, freestanding hedge, bordering on public area.	<i>aristolochia durior</i>  <i>vitis coignetiae</i>  <i>parthenocissus tricolor "veitchii boskoop"</i> 			<i>clematis montana "mayleen"</i> 
D	North-west sun, hedge adjacent to building, bordering on garden or public area.	<i>akebia quinata</i>  <i>wisteria flor "honbeni "</i>  <i>hedera colchica "sulphur heart"</i> 			<i>clematis montana "freda"</i> 
E	Sun from all sides, freestanding hedge, bordering on communal area.	<i>lonicera jap "dart's acumen"</i>  <i>euonymus fortunei "coloratus"</i>  <i>parthenocissus tricolor "veitchii boskoop"</i> 			<i>clematis "hagley hybrid"</i> 
F	South-west and south-east sun, freestanding hedge, bordering on public area.	<i>clematis montana "freda"</i>  <i>clematis armandii</i>  <i>clematis tangutica</i> 			<i>rosa "compassion"</i> 
G	South-west or south-east sun, hedge adjacent to building, bordering on garden or public area.	<i>wisteria sinensis "prolific"</i>  <i>hydrangea petiolaris</i>  <i>clematis orientalis "orange peel"</i> 			<i>campsis radicans "flava"</i> 
H	South-west and south-east sun, freestanding hedge, bordering on public area.	<i>euonymus fortunei "variegatus"</i>  <i>euonymus fortunei "coloratus"</i>  <i>hedera helix</i> 			<i>jasminum nudiflorum</i> 

	<h2>FRUIT GARDEN</h2> 
<p>rosa "parkdirektor riggers"</p> 	<div> <div> <p>hydrangea petiolaris</p>  </div> <div> <p>hedera colchica "dentata variegata"</p>  </div> </div>
<p>rosa "pink cloud"</p> 	<div> <div> <p>vitis coignetiae</p>  </div> <div> <p>wisteria sinensis "prolific"</p>  </div> </div>
<p>campsis tagliabuana "madame galen"</p> 	<div> <div> <p>lonicera jap "dart's acumen"</p>  </div> <div> <p>leipeer - leiappel</p>  </div> </div>
<p>wisteria floribunda "shiro noda"</p> 	<div> <div> <p>hydrangea petiolaris</p>  </div> <div> <p>leipeer - leiappel</p>  </div> <div> <p>vitis boskooops glory</p>  </div> </div>
<p>clematis "jackmanii superba"</p> 	<div> <div> <p>rubus tricolor</p>  </div> <div> <p>chaenomeles superba "fusion"</p>  </div> </div>
<p>coanodus "gloire de versailles"</p> 	<div> <div> <p>jasminum nudiflorum</p>  </div> <div> <p>rubus phoenicolasius</p>  </div> <div> <p>rosa canina</p>  </div> <div> <p>rosa pendulina</p>  </div> </div>
<p>campsis tagliabuana "madame galen"</p> 	<div> <div> <p>rosa "zephirine drouhin"</p>  </div> <div> <p>vitis bosk. glory</p>  </div> <div> <p>vitis "vroeg v.d. laan"</p>  </div> <div> <p>schisandra chinensis "eastern prince"</p>  </div> </div>
<p>clematis montana "freda"</p> 	<div> <div> <p>rubus "spect.tayb."</p>  </div> <div> <p>rubus "autumn bliss"</p>  </div> <div> <p>rubus "thornl.loganb."</p>  </div> <div> <p>rubus "thornless evergreen"</p>  </div> </div>

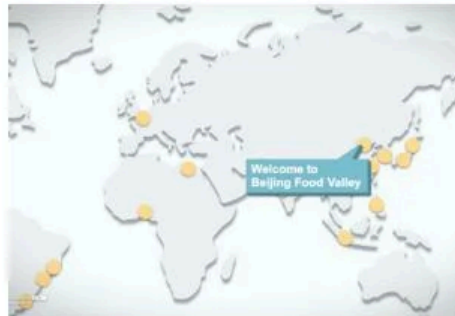


Beijing Metropolitan Food Valley





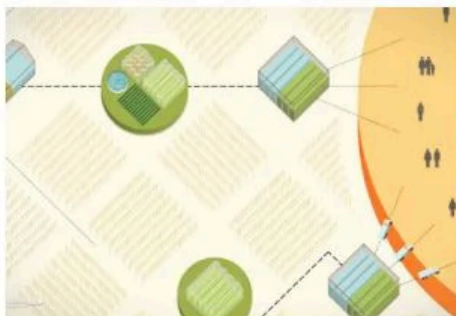
Metropolitan Food Valleys by Wageningen UR and van Bergen Kolpa Architects 'presenting the Beijing Food Valley'



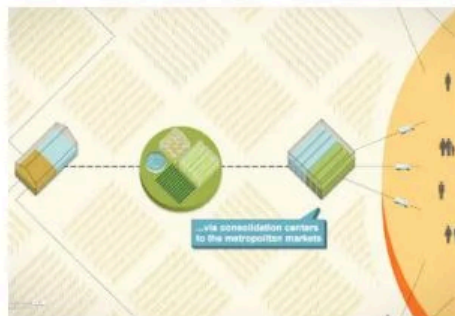
Welcome to Beijing Food Valley



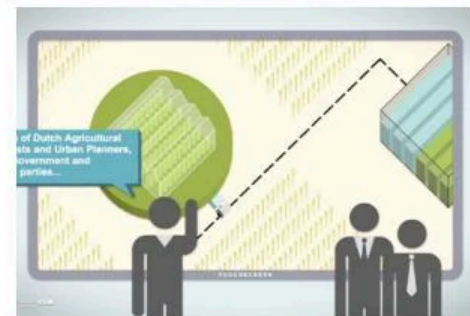
Beijing Food Valley is preparing for China's rapidly growing urban population



...distributing and delivering using cooled transport



...via consolidation centers to the metropolitan markets



A team of Dutch Agricultural scientist and Urban Planners, local Government and Market parties design the Metropolitan Food Valleys



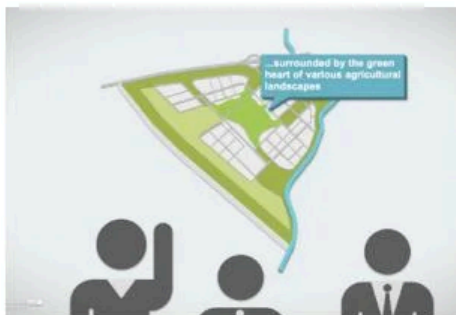
Concentrating food production...



... creating space for new urban development



In the Beijing Food Valley living, working and leisure is combined with Commercial agriculture



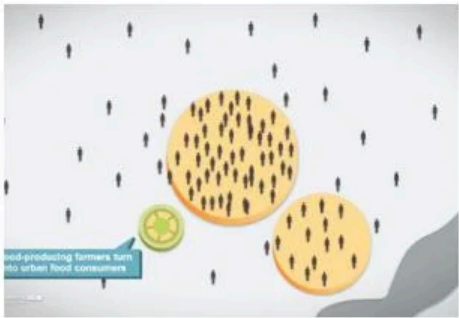
with urban islands for residential, commercial and industrial development surrounded by the green heart of various agricultural landscapes



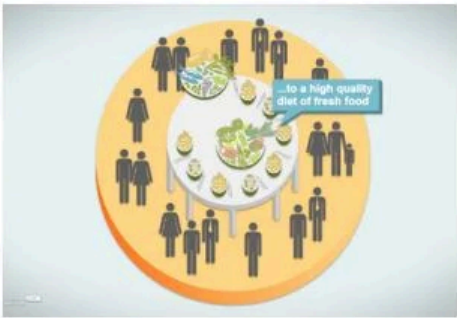
The Commercial Agriculture with economy of scale and high yields



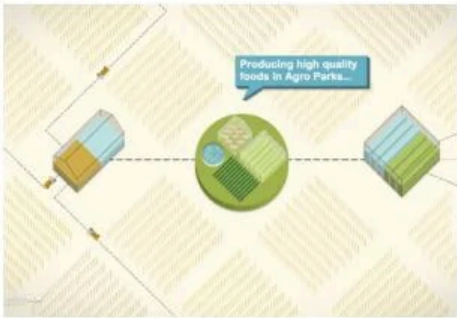
Ecological Agriculture with biodiversity, original species and natural landscapes



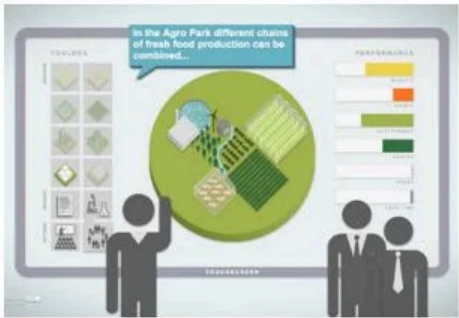
...food-producing farmers turn into urban food consumers



Wealthy consumers switch from a diet of basic food to a high quality diet of fresh food



Producing high quality foods in Agro Parks



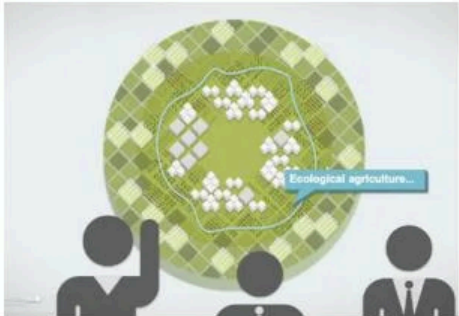
In the Agro Park different chains of fresh food production are combined



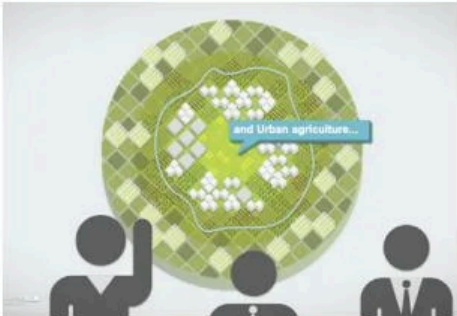
...with City development, education and research facilities



...and the exchange of residual heat and waste water with the city



...Ecological agriculture



...Urban agriculture



Within the borders of existing rivers, infrastructure, forests and rural settlements the Beijing Food Valley is designed and developed



Urban Agriculture in the Greenheart where people can experience and enjoy food production, trails and recreation facilities.



The Agricultural Information Center, a high-tech glasshouse with restaurants and eco wetland. The public heart of Beijing Food Valley



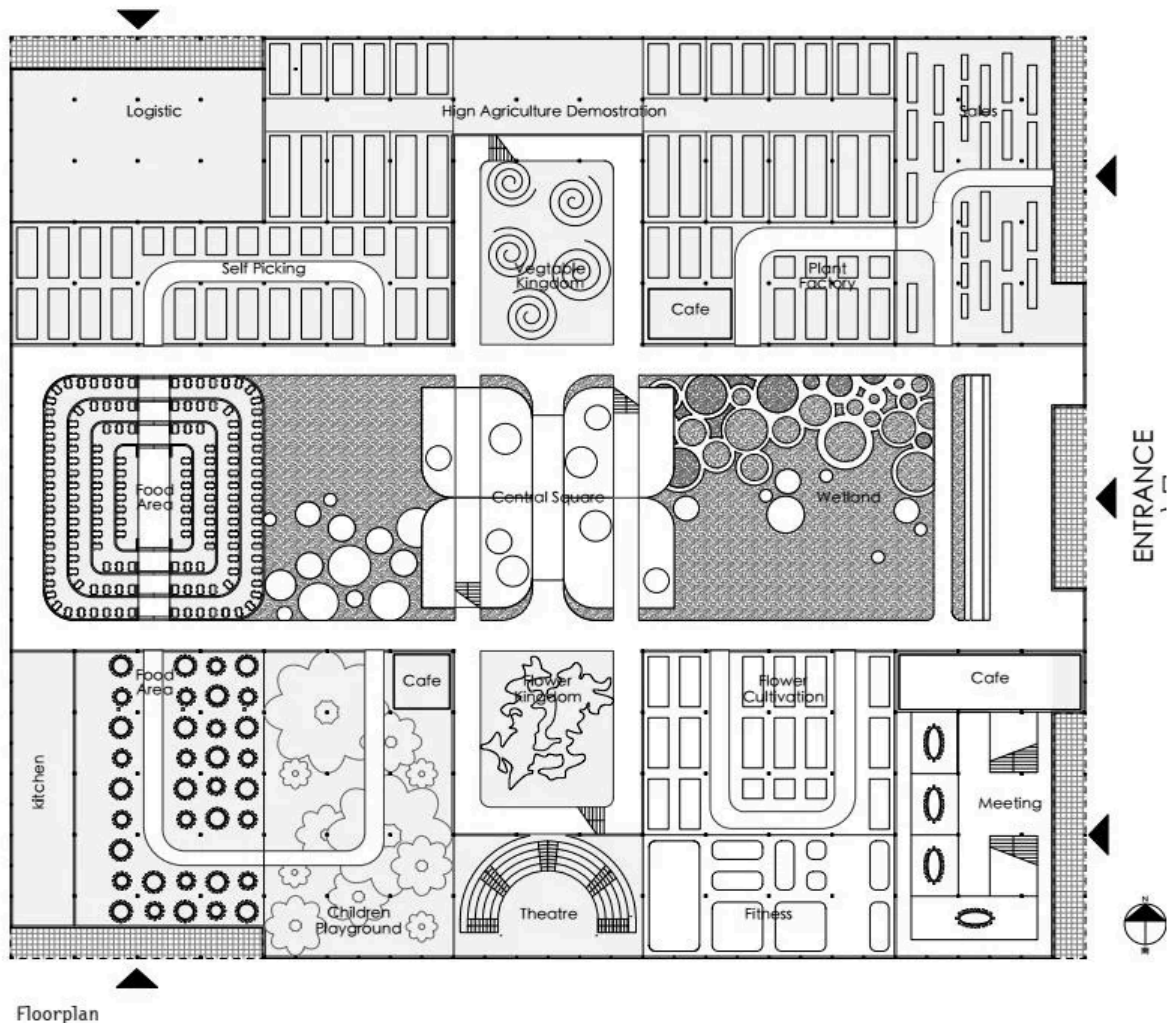
Showing how Metropolitan Food Valleys can combine city development and food production to a green and healthy city.



COFCO

demonstration centre

Foodbuildings in the heart of a New Town



Floorplan

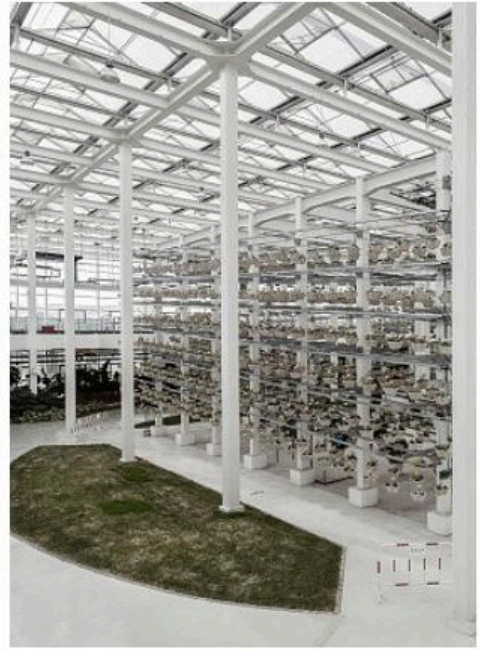
COFCO aspires a Demonstration Center where agriculture, ecology and leisure come together. The new Demonstration Centre will be located at the entrance of the Eco Valley area in Beijing. The center wants to show the newest technologies for sustainable growth of vegetables, fruits and flowers. In the center visitors can experience and enjoy the production and taste of fresh food and flowers throughout the year.

The building is a proud building; a transparent sculpture of steel and glass based on a standard Dutch greenhouse type. The special entrance and wetland garden form the high and spacious heart of

the building. From this central hall the volume terraces down to the agriculture and leisure zones. The building has been divided into different rooms with a specific landscape theme.

A routing system is designed, inspired by a Chinese knot, in such a way that short or long routes can be made. In the central hall lies a wetland garden with in the heart a central plaza. Beside the wetland, there is a flower kingdom with spectacular flower hills and hanging plants ceiling, a restaurant on a flower hill, a theatre, a self-picking garden a vegetable kingdom, and a high-tech agriculture demonstration zone.

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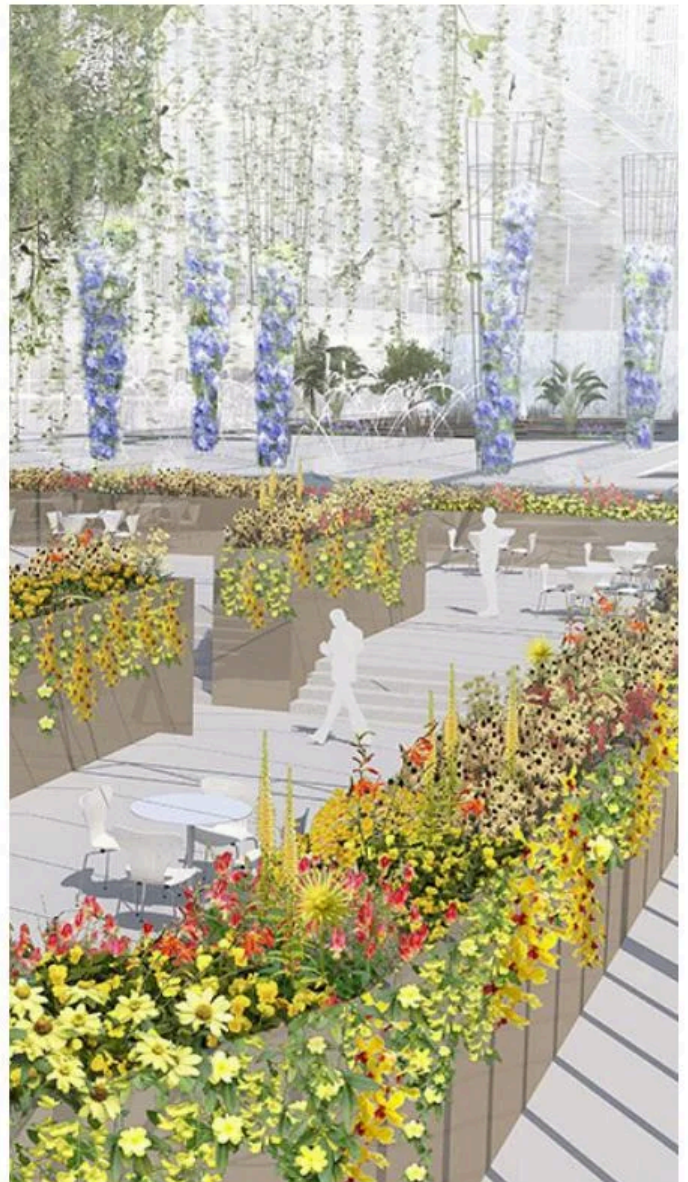
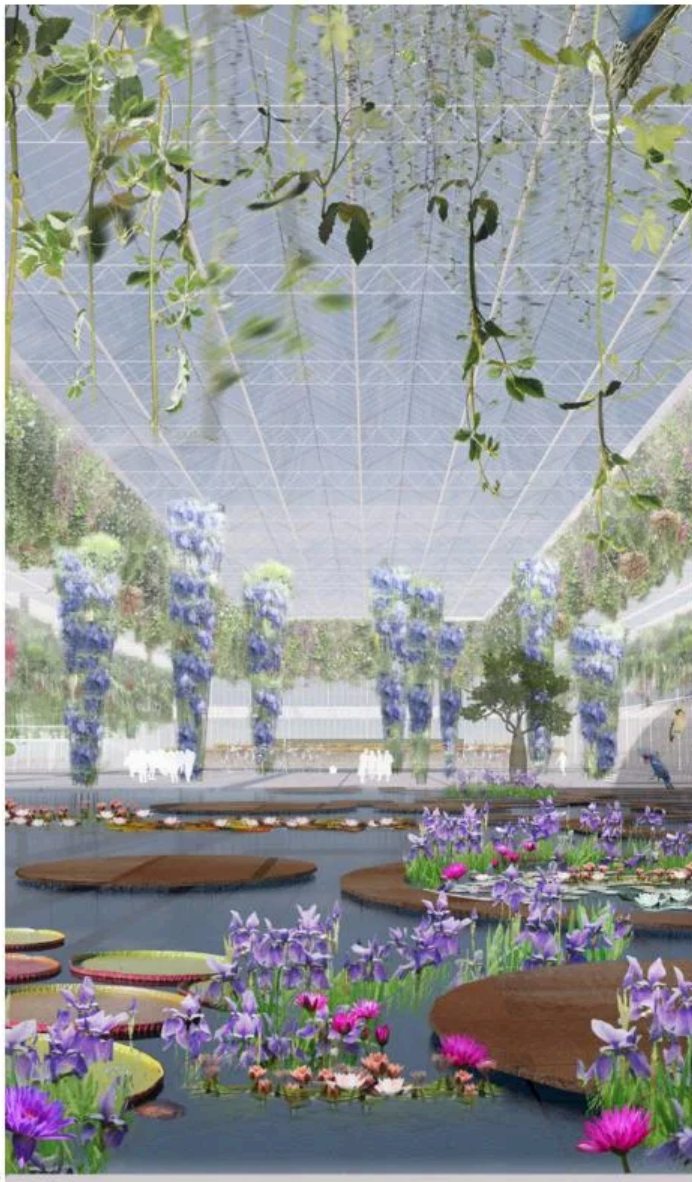
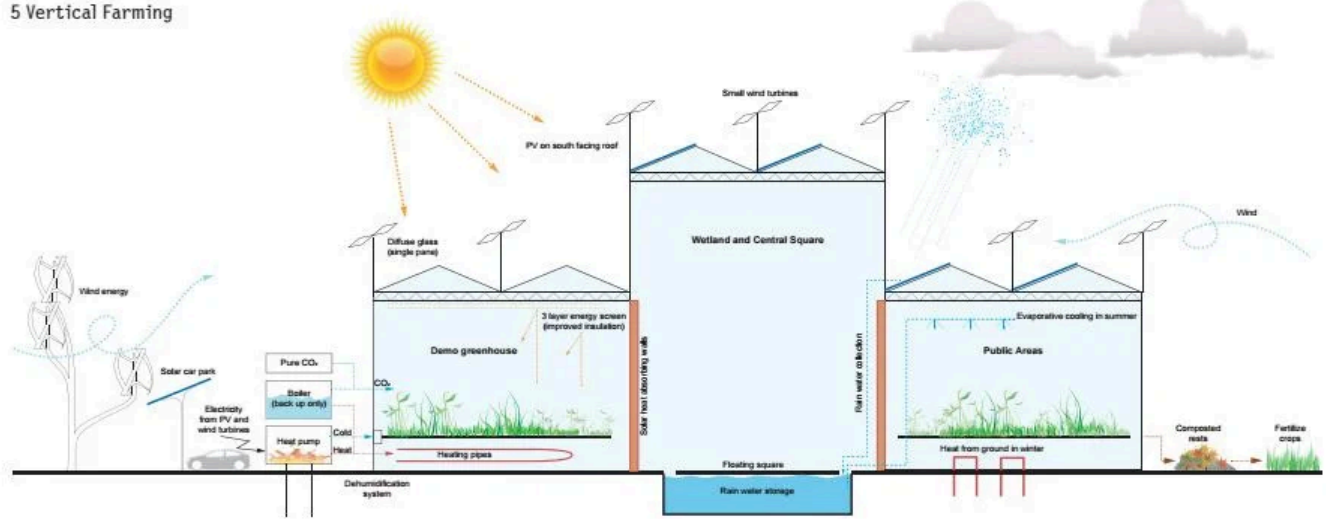
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- 1 Exterior
- 2 Main square
- 3 Deep Float Table vegetables
- 4 Automated plants
- 5 Vertical Farming
- 6 Climate concept
- 7 Flower garden and water hall
- 8 Cafe/garden



A large flock of sheep is grazing on a lush green hillside. The sheep are white with various colored markings (red, yellow, green) on their backs. In the background, there is a building with a white staircase and a paved path leading up to it.

Green Deal Urban Agriculture

Business cases for Dutch urban farmers



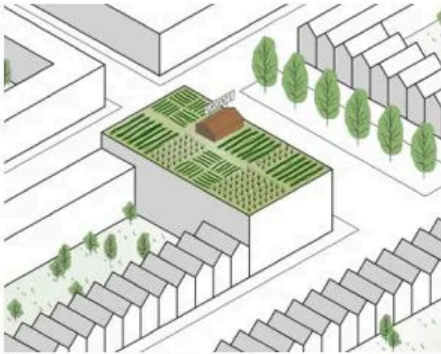


Together with the Dutch Ministries of Agriculture and economic affairs, University of Wageningen, Priva Horticulture and De Volharding Finance, van Bergen Kolpa Architects initiated the National Federation for Urban Agriculture. The aim of the Federation is to professionalize Urban Agriculture. Urban Agriculture stimulates local economies, improves the environment and social interaction and provides food produced in and around the city. The Federation supports Urban Farmers with knowledge, finance and spatial design.

In preparation of the Federation for Urban Agriculture twelve urban agriculture initiatives were studied on various levels; spatially, programmatically, technically and economically.

The projects are situated inside or on the rooftop of buildings, in the public realm of the city, around the city borders or on the outskirts of the city. Some of the projects have a temporarily status, others are permanent and deploy low-tech open field techniques or high-tech indoor techniques such as Led artificial lighting. What all projects have in common is a variety of economic activities among their urban food production. A fruit orchard combined with a restaurant, rooftop farming on top of offices or vegetable gardens with health facilities. Urban agriculture is by definition a mixed-use activity and needs to be financed in such manner. Financing Urban agriculture therefore demands a combination of both public and private resources.

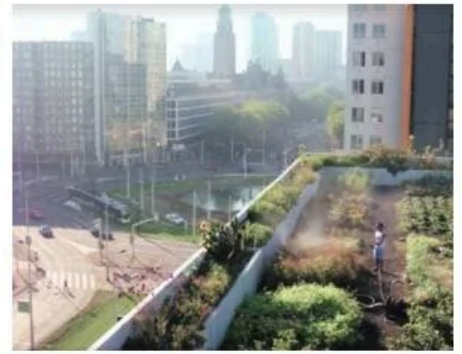




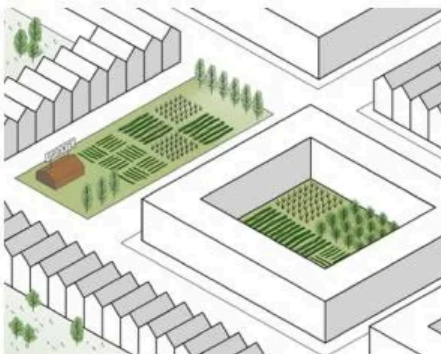
Inside or on top of a building



Urban Farmers - De Schilde
Rooftop greenhouse



DakAkker
Rooftop garden



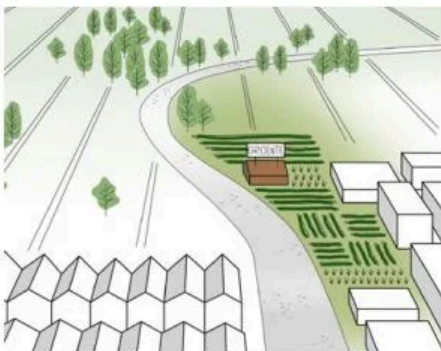
In the city



Uit Je Eigen Stad
Walled garden



Rotterdamse Munt
Plantation



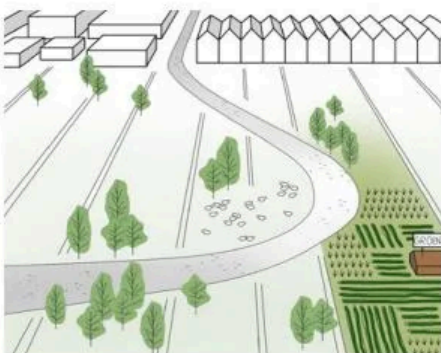
On the edge of the city



Landgoederenzone Maastricht
Room landscape



Nieuwe Akker
Open field



Rural and focused on the city



Moestuin Maarschakerweerd
Courtyard garden



Schapenboerderij Schieveen
Experience garden



**food from
ed**

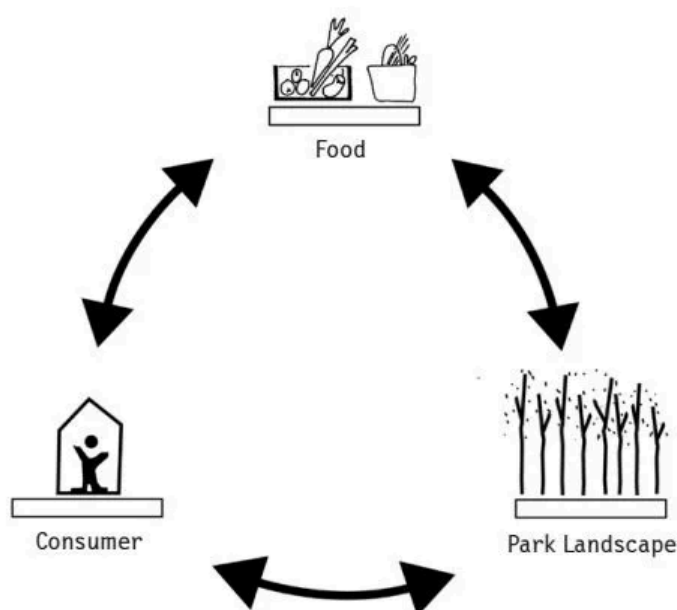


n the city
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Park Supermarket

Production and recreation around the city



Park Supermarket is a recreational and educational Park where the contents of a contemporary Supermarket are cultivated and sold. In the green market gardens, nurseries and orchards you can experience all aspects of locally grown produce such as avacodos, mangos and even rice. Water, nutrients and energy are locally harvested and exchanged within the Park. Park Supermarket, developed and operated by local farmers and entrepreneurs, is situated in the Metropolitan Parks embracing the cities of the Randstad.

The ecosystem of the Park Supermarket has been set up around local food production, distribution and consumption. Based on underlying soil types (peat and clay), new climate zones (moderate, mediterranean and tropical) and raised water levels an entirely new landscape is introduced where the contents of a contemporary supermarket are cultivated and sold. The variety of products produced reflects the needs of the 177 culinary traditions that live in the cities that surround the Park Supermarket. Each department knows its characteristic growing conditions and product types such as Pandan-en Risotto rice on water terraces, Tilapia fish in basins and kiwi's and avacodos along undulating fruit walls. The climate household of the outdoor supermarket is supported by old techniques such as warmth accumulating snake walls and more contemporary solutions as insulating water spray 'roofs' and floor heating on the basis of thermal warmth.

Because of its set up in small plots of one hectare each Park Supermarket is able to grow with the need for diversity of food of the consumer and the renewing insights in agrarian techniques. Randstad inhabitants will in this way be able to consume and recreate in a new Park landscape for the 21st century.

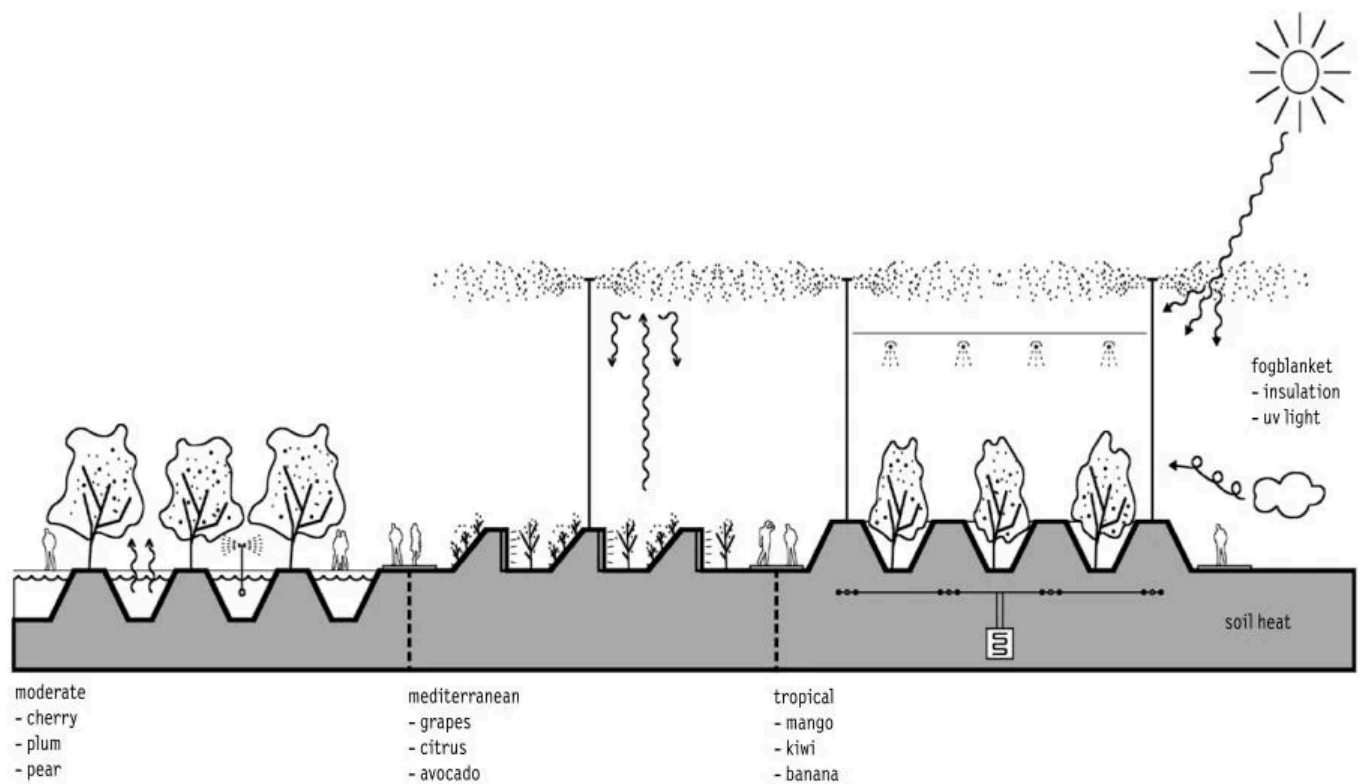
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- 1



3 Rice department
4 Section



2 Oslo, Exposition Architectuur als Noodzaak - 2012
 4 Mumbai, Exposition Architectuur als Noodzaak - 2011
 6 Sao Paulo, Exposition Architecture of Consequence - 2009

3 Rome, Exposition Food to Space - 2015
 5 Eindhoven, Exposition Food to Be - 2017

2/3



4/5



6



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EDITION: INTERNATIONAL

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Farm in the city could be supermarket of the future

By George Webster, CNN

October 29, 2011 -- Updated 1313 GMT (2113 HKT)

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Within the next year, Dutch firm Van Bergen Kolpa Architects hope to have a working prototype of a supermarket farm that could produce most of the food items found in any grocery store.

The 'Park Supermarket'

HIDE CAPTION

1

2

3

4

5

STORY HIGHLIGHTS

- Concept designed to produce all food of a modern supermarket on one plot of land
- Dutch architects say they will use mix of technologies to create artificial growing climates
- Scheme designed to reduce food production and transportation emissions
- Crop scientist has doubts about creating artificial microclimates

(CNN) -- Big cities are rarely home to thriving farmlands, but a group of Dutch architects hope to change that with the "Park Supermarket" -- an urban farming project that will attempt to grow and sell all the food of a modern supermarket in one place.

The firm behind the proposal, Rotterdam-based [Van Bergen Kolpa Architects](#), intends to produce everything from risotto rice, to kiwis to Tilapia fish all on one 4,000-acre plot of disused land in Randstad, Holland's largest metropolitan area.

In defiance of the country's moderate climate, the architects say they have devised a system to control the park's outdoor environment, using old and new farming technologies to simulate Mediterranean and tropical climates in an ecologically sustainable way.

The land, which had been earmarked for a large block of business developments before the global recession, cuts across the city fringes of Rotterdam and The Hague, serving a potential customer base of seven million people, according to Van Bergen

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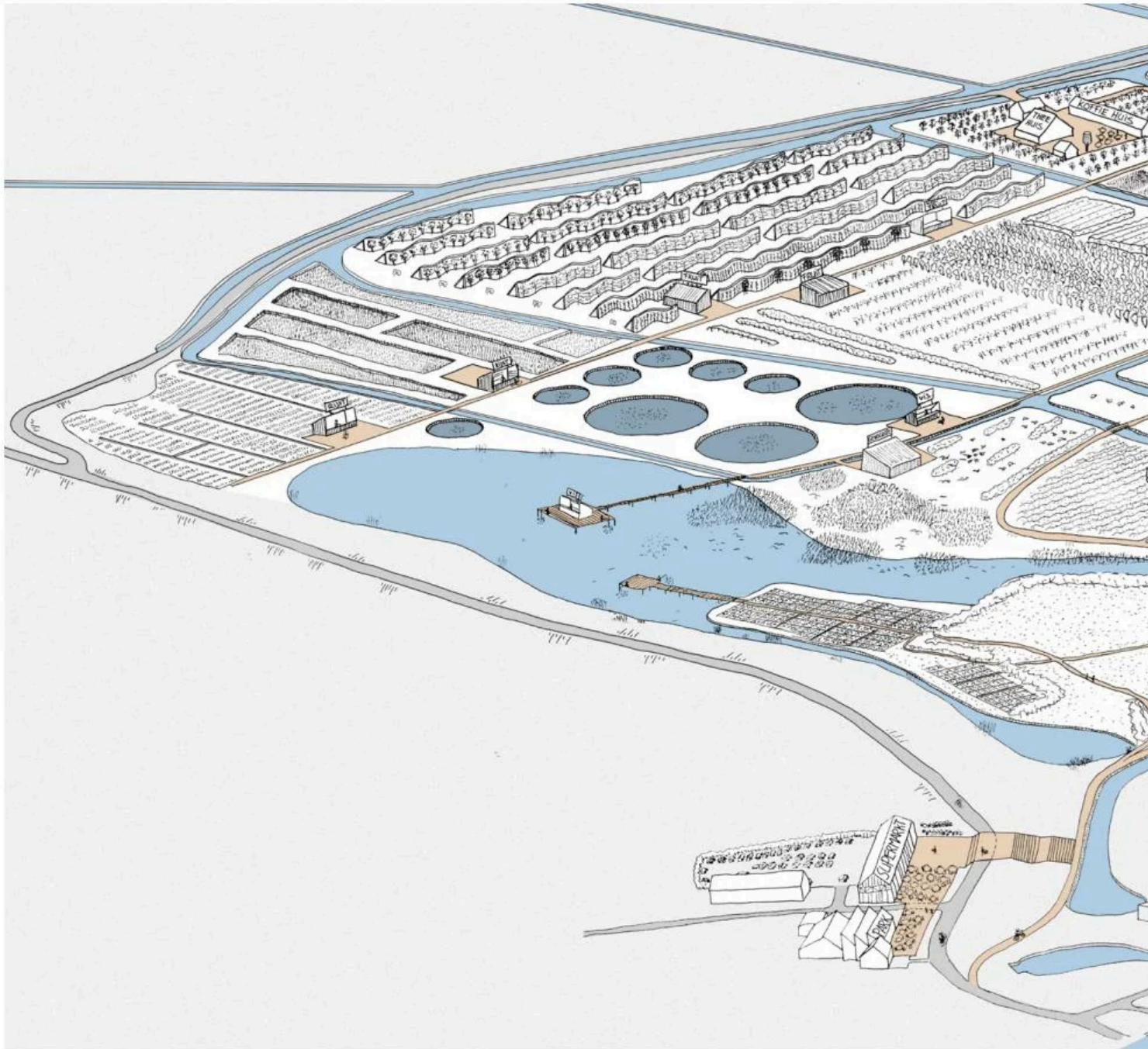
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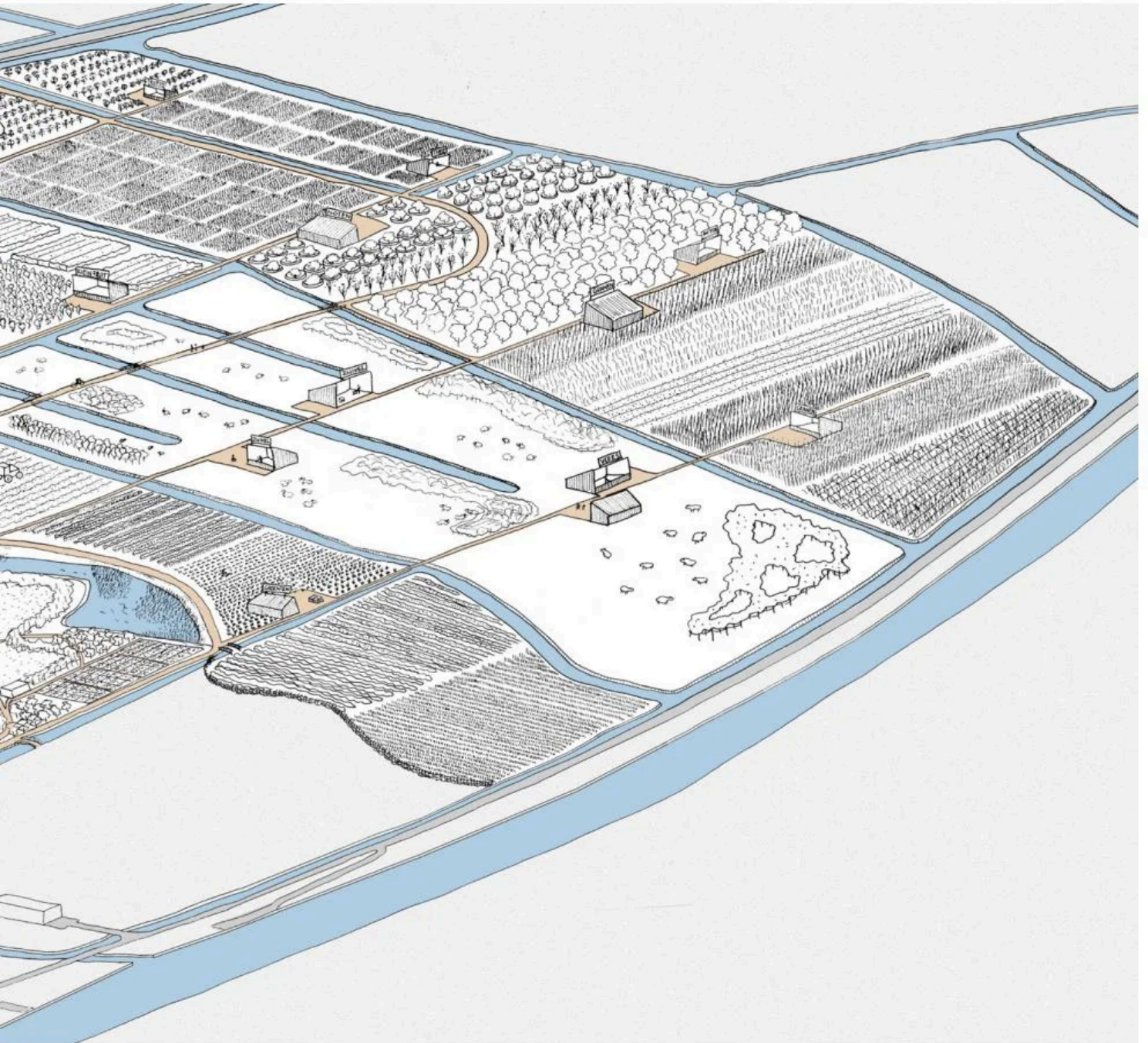


The design aims at a Landscape Supermarket. A park-like setting showcasing in an attractive way how the Oregional farmer's products are cultivated. Therefore the existing small-scale parceled landscape will be developed in its original and characteristic way. You will find orchards with fruits, fields with vegetables, fishponds and cattle on grasslands. Along undulating snake walls Mediterranean crops grow in microclimates like grapes and olive trees.

Along the fields of the Landscape supermarket small paths and farmer sheds are situated that inform the customers and allow for opportunities to taste and buy the products. Diagonally through the area runs a recreational bike and walking path that showcases an overview of the food assortment and its production landscapes.

Oregional Plaza

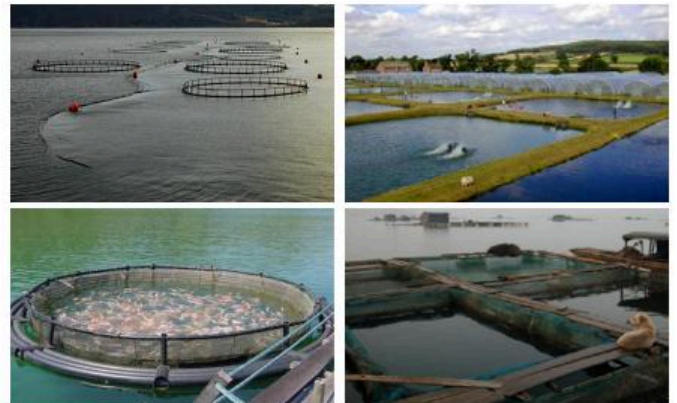
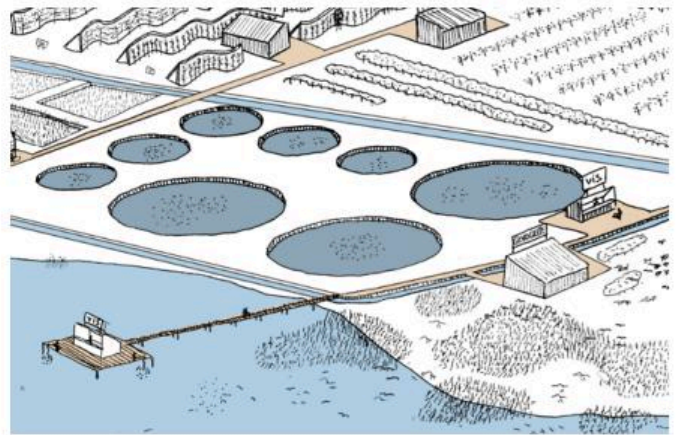
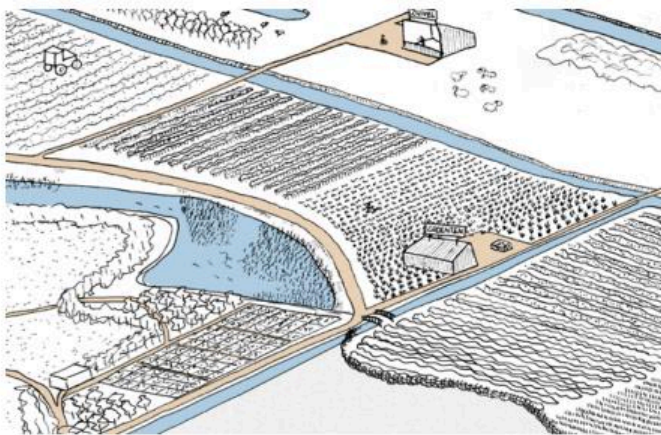
Showcase for farmer cooperative



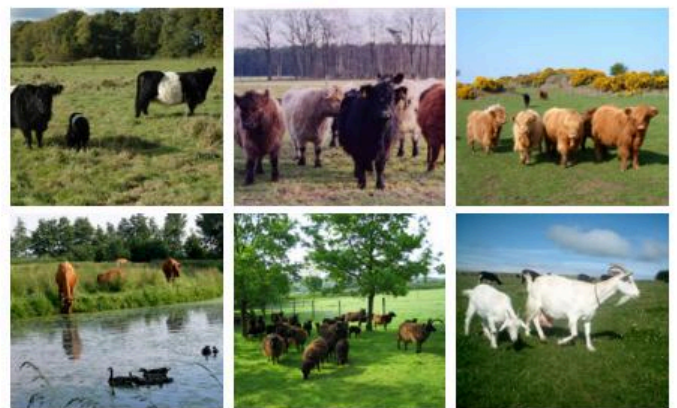
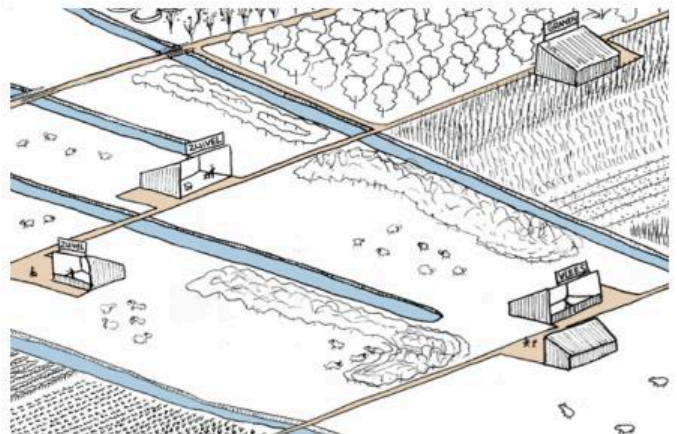
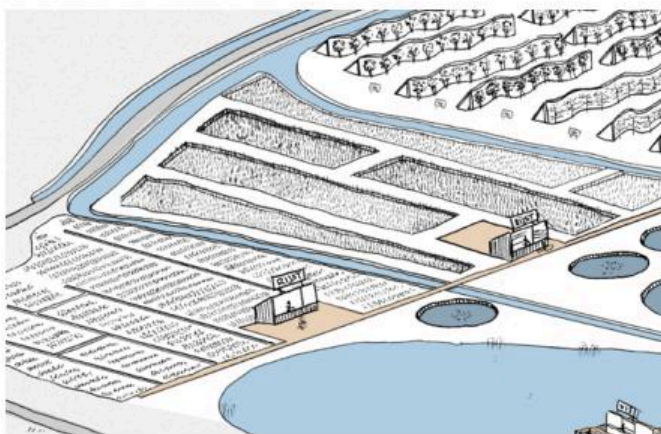
Along the Ooyse band dike the entrance of the Park Supermarkt Oregional is situated. This entrance area with two existing buildings is equipped with a restaurant terrace that offers a splendid view on the Park Supermarket. A wide stair over the dike leads the visitors into the Landscape Supermarket. A small market square in between the building connects the complex to the old river Waal. Here the natural river landscape is connected with the culture landscape of the Ooijse Schependom.

The former industrial warehouse and railway station building are reused and transformed into a fresh market and entrance building. Here the visitors can taste the products in the restaurant and shop their groceries in the indoor fresh market. Behind the buildings the parking facilities for bikes and cars are situated.

- 1 Vegetable department
- 2 Fish department
- 3 Rice department
- 4 Meat & dairy department

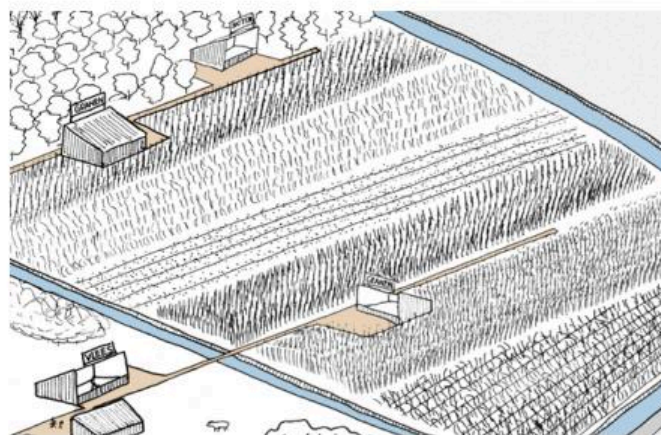
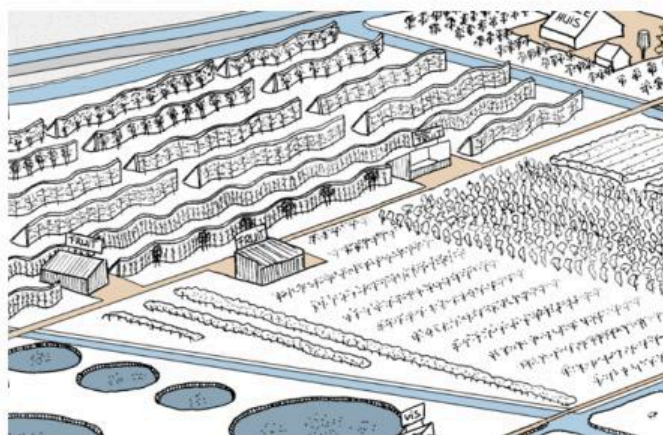


1/2

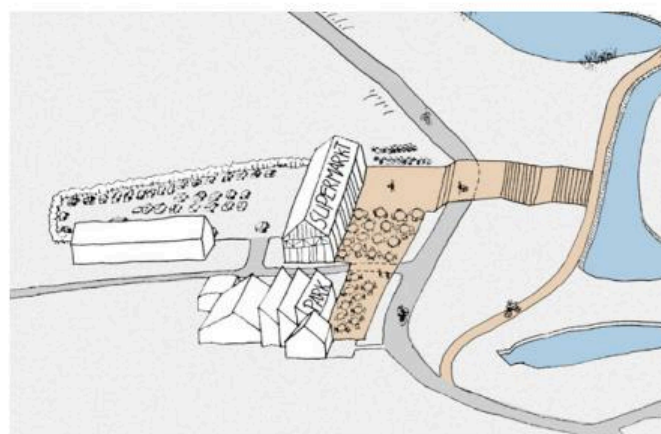
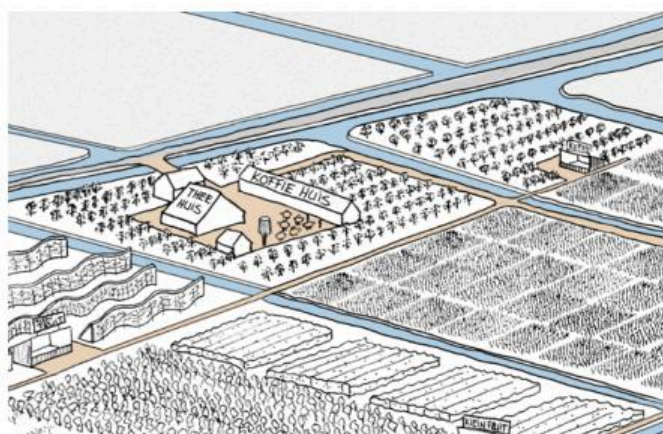


3/4

- 5 Fruit department
- 6 Wheat department
- 7 Coffee & tea department
- 8 Indoor Sale



5/6



7/8



Flowfood Diner

Culinary planning in the Dutch polder

Flow food is a spatial-culinary view of the future of the Dutch landscape in the year 2070. By unleashing both the salt and fresh water forces on the Dutch landscape an up till now unknown rich biodiversity will start to flourish. This future landscape will take many spatial forms and characteristics. On the occasion of the second Architecture Biennale Rotterdam this new landscape can be 'tasted' through a unique one off dining event.

Due to climatological changes rainwater patterns will drastically alter and the sea water table will rise. The current flexibility and absorption capacity of the Dutch polder landscape will no longer be sufficient against the forces of the rising water levels. On top of this, geological forces will rotate the Dutch geological plate over a diagonal line. The east will rise further and the west will sink even deeper under sea level. Water in all forms will become an increasingly dominant factor and will drastically change the Dutch landscape. What is the culinary potential of these future wet and dry landscapes?

The basis of the new landscape is the result of an exchange between salt and fresh water. Future coastal developments create gradual transitions between the land and the sea such as lagoons and marshlands where algae and sea vegetables flourish. High drifting sand dunes create a wild environment for juniper berry bushes and sea buckthorn that can create tasty wines and preserves.

Upcoming water levels turn the lower parts of Holland into a rich and diverse landscape. The once man-made landscape offers new changes for a extensive agrarian production landscape. Percolating salt water creates fertile brackish soil for sea asparagus and sea lavender as well as shellfish, eel and birds. Within this salty landscape urban settlements create their own fresh water environments giving rise to small scale farming of delicious produce such as watercress, mint and rocket.

The terraced hillsides of the most eastern areas create first wet and then dry soils for rice, barley, oats and grain crops. Further inland flourishing rivers flow into fishponds for the farming of bass and carp fish. Forests and foreland take over the milk and meat production, previously in the polders, on a small-scale basis.

The dominant role of both fresh and salt water in the near future is regarded as a positive factor for the landscape and its productive qualities. It means a transition from defensive planning to be able to produce our butter, cheese and eggs to a dynamic 'culinary planning'.

Flow food is schematically illustrated by a cross section over the Dutch landscape showing its new culinary potential. On occasion of the second Architecture Biennale Rotterdam the produce of this new landscape will be served during an one off unique dining event: THE chance to taste the new Flow Food landscape!

SALT + WET

SEA

SALT + WET

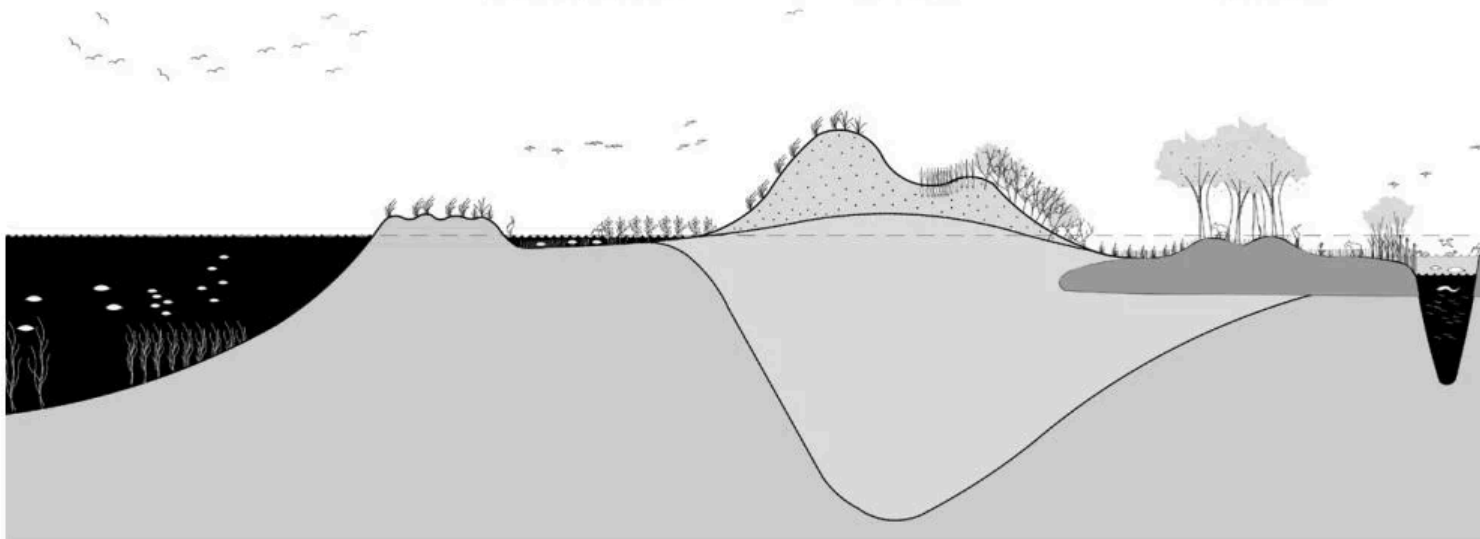
LAGOON: TIDE LANDSCAPE
NEW DEVELOPMENTS

SWEET + DRY

DUNES
THE HAGUE

SWEET + WET

CREEK AND POLDER
ROTTERDAM



Sea
Macro-Algae: Kombu, Wakamé, Nori, Arame, Hiziki, Dulse
Saltwaterfish / Zoutwatervis
Shellfish / Schelpdieren

MENU 200505:
Oyster in a Jelly of Seawater
and Agar-agar with Samphire
Salad of Seaweed
Roll of Egg, Smoked Salmon
and Nori

Oester in gele van zeewater en
agar-agar met zeekraal
Zeevoer salade
Rolletje van ei, gerookte
zalm en nori



Lagoon
Crustacean and Shellfish /
Schaal- en schelpdieren:
Clam, Cockle, Mussel, Oyster,
Winkle, Shrimp et cetera

Nori / Papierwier
Liver / Rodevies
Sea Lettuce / Zeekraal
Sweet Oar Weed -
Marsh Samphire / Zeekraal
True Samphire / Zeevoerkel
Sea Purslane / Zeepostelein
Sea Pea / Zee-erwt
Sea Lavender / Lamssoor
Sea Beet / Zeebiet
Sea Kale / Zeekool



Dunes
Sand Leek / Zandprei
Carragheen / Zandpoet
Sand Potatoes / Zand aardappel
Asparagus / Asperges
Rocket / Rucola
Hawthorn / Duindoorn
Juniper / Jeneverbes
Rose Hip / Rozestoffel
Elder / Vlier
Rabbit / Konijn
Duck / Bergend
Rapeseed / Koolzaad
Quail / Kwartel

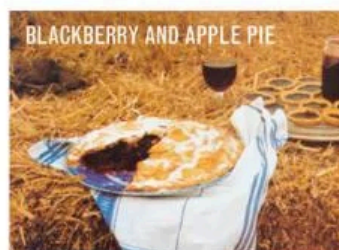
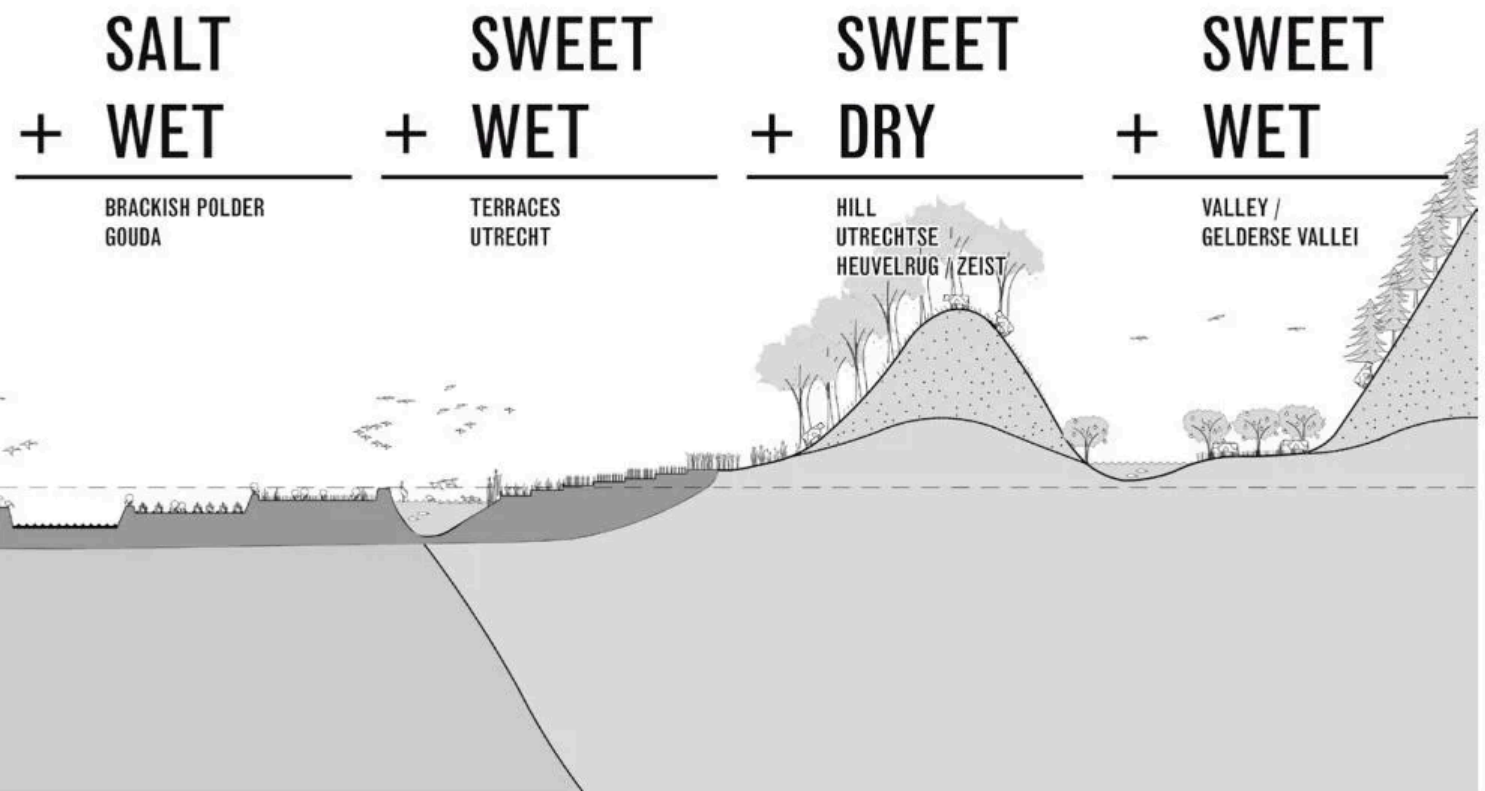
MENU 200505:
Soup of Carragheen, Rucola,
Sand Leek, Sand Potatoe,
Rapeseed and Quail Egg
Crutche van zandprei, rucola,
zandprei, zand aardappel, koolzaad
en kwartel



Polder
Cranberry / Veendruif
Sorrel / Zuring
Fenel / Paddenstoelen
Clover / Klaver
Dandelion / Molke
Hop / Hopscheuten
Nettle / Brandnetel
Red Clover / Rode klaver
Rhubarb / Roribier
Dew / Hart
Moose / Eland

Creek
Hazel / Hazel
Oak / Eik
Sweet Chestnut /
Tanne / Kastanje
Almond / Amandel
Birch / Berk
Wild strawberry /
Wilde aardbeien
Elder / Vlier
Lime / Linde

Flow-Field is a project of Lofthouse | van Bergen | Krijger and Dechen to Rotterdam (www.lhof.nl) with Nieuwlandsch Architectuurarchitectuur (nl) | Alisma | Wageningen UR, Vincent Krijger (nl) | ZAN | Wageningen, Rob. Buijs en Buijs | Wageningen (nl) | Photography from 2010 onwards: Roger Phillips



Reservoir
Sweetwater Fish / Zoet-
watervisen (snook, karpel etc)
Alga / Algen
Shallfish / Schelpdieren
Eel / Paling
Snail / Slakken
Reed / Riet
Duck / Eend
Goose / Gans
Quail / Kwartel
Wood Pigeon / Houtduif
Deer / Hert
Moose / Eland

Sea Camomile / Zeekamille
Sea Grass / Zeegras
Green Cabbage / Groene kool
Brussel Sprouts / Spruitjes
Kohlrabi / Koolrabi
Fennel / Venkel
Parsnip / Pastinaak
Turnip / Rapen
Sheep, Lamb /
Schape en lammeren
MENU 280505:
Lamb with Parsnip and Sea
Lavender, Stewed Onion
Lamscarre met pastinaak en
lamsoor, gestofde ui

Pond
Alga / Algen
Sweetwater Fish / Zoetwatervis
Duck / Eend
Goose / Gans
Quail / Kwartel
Wood Pigeon / Houtduif
Turnip / Rapen
Sheep, Lamb /
Schape en lammeren
Watercress / Waterkers
Watermint / Watermunt
Allium / Loken
Sage / Salie
Chives / Bieslook
Parsley / Petersale
Sorrel / Zuring
Camomille / Kamille
Hop / Hopgedruen
Nettle / Brandnetel
Elderberry / Vlier
Landcress / Barbakruut

Terraces
Watercress / Waterkers
Rice / Rijst
Purslane / Polderlin
Lamb's Lettuce / Veldsla
Hemp Nettle / Rasgras
Scorzonera / Schorseneren
Rye / Rogge
Barley / Gerst
MENU 280505:
Salad of Millet with Water-
cress, Chives, Dandelion and
Watermint
Gerstsalade met waterkers, wilde
beirook, molsla en watermunt

Slope
Oats / Tarwe
Millet / Gerst
Bulgur / Bulgur
Sorghum / Sorghum
Spelt / Spelt
Lavender / Lavendel
Grapes / Druiven
Hogweed / Berenklauw
Forest
Almond / Amandel
Beech / Beuk
Birch / Berk
Elder / Vlier
Hazel / Hazel
Oak / Eik
Sweet Chestnut /
(tanne) Kastanje
Wild Strawberry /

Wild arbutus
Bramble / Bramen
Broom / Broom
Wild Cherry / Wilde kers
Wild Raspberry /
Wilde framboos
Blackberry / Zwarte besen
Juniperberry / Jeneverbes
MENU 280505:
Cheese with Peppery
and Nuts / Boerenkazen met
peperdroop en noten
Parfait of Lavender with Rasp-
berrysauce / Lavendelparfait met
framboosaus

Foreland
Sheep / Schape
Cows / Koeien
Sweetwater Fish / Zoetwatervis
Apple / Appel
Cherry / Kersen
Crab Apple / Kersappel
Pear / Peren
Blackcurrent / Zwarte bessen
Redcurrent / Rode bessen
Lime / Limde

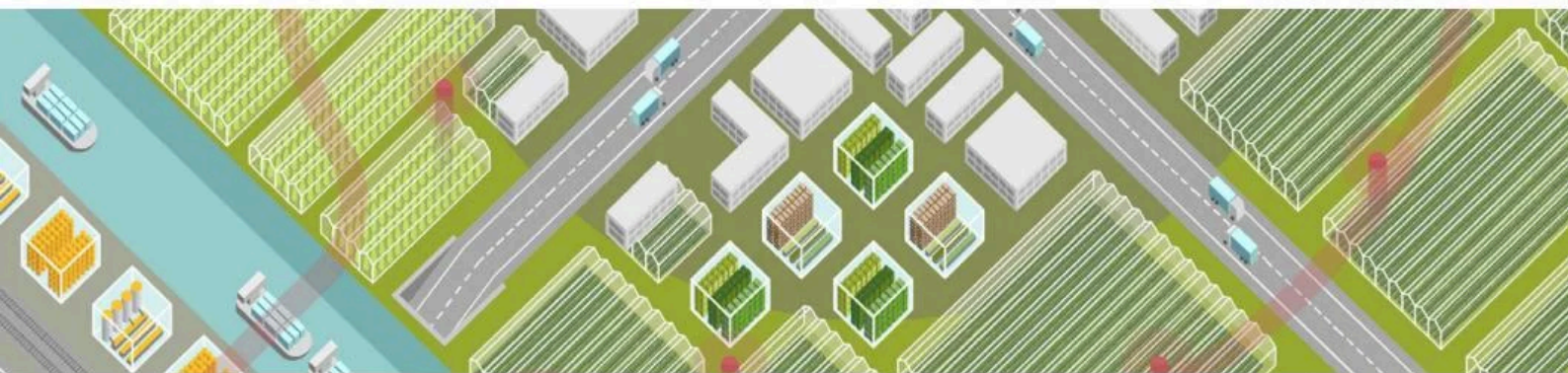
Forest
Cows / Koeien
Fungi / Paddestoelen
Juniperberry / Jeneverbes
Blueberry / Bessen
Pine-tree / Den
Rhubarb / Rhabarber
Heather / Heide

An aerial photograph of a vast agricultural complex, likely a greenhouse nursery or vegetable production facility. The landscape is dominated by hundreds of rectangular greenhouses, some with white plastic covers and others with green mesh or glass. These structures are arranged in a grid-like pattern, separated by narrow paths and small clusters of trees. A prominent canal or drainage system runs diagonally through the left side of the image. In the center-right, there is a small residential or administrative area with several houses and buildings. The overall scene depicts a highly organized and intensive food production environment.

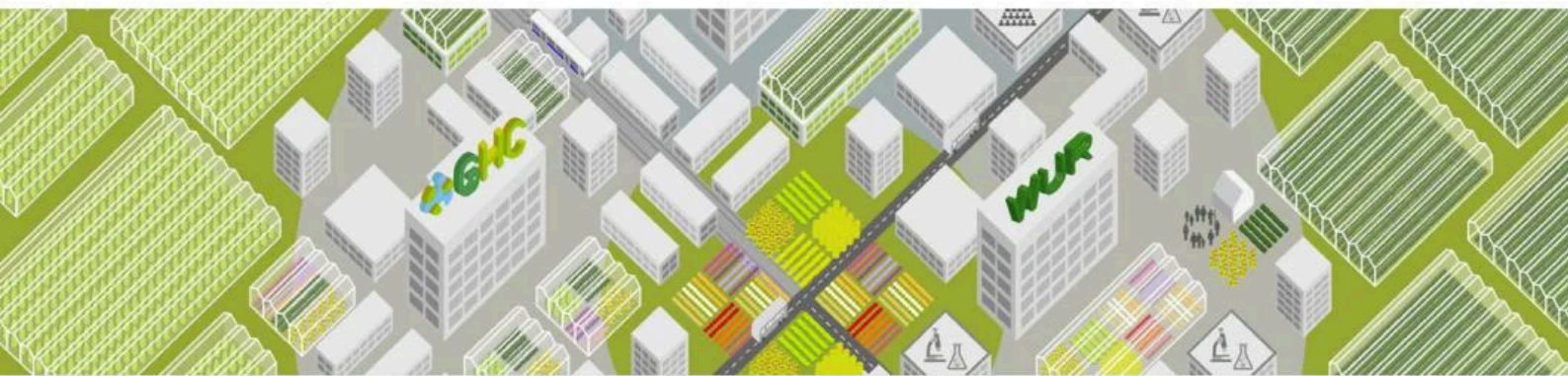
food from
the

n around
city

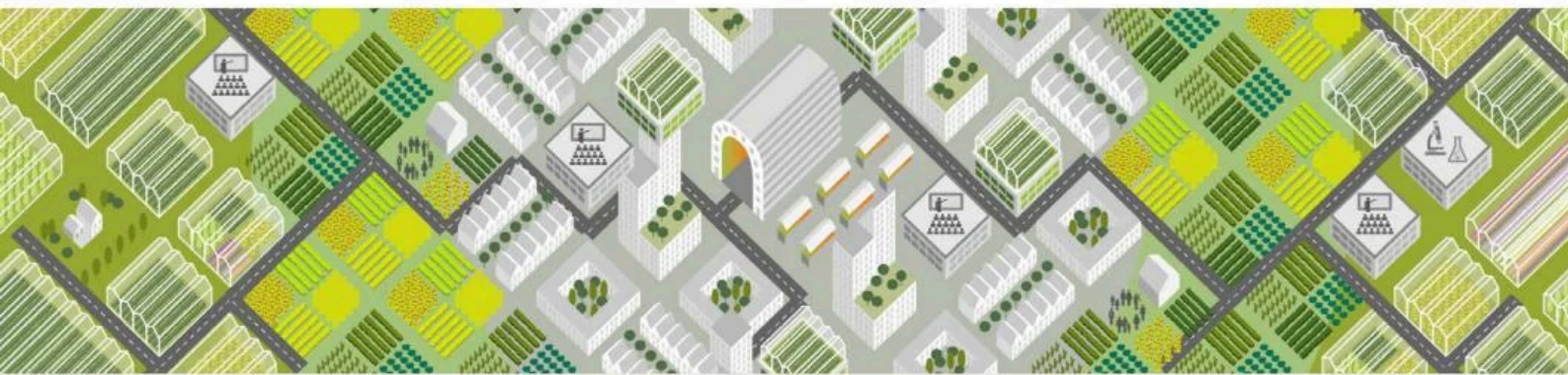




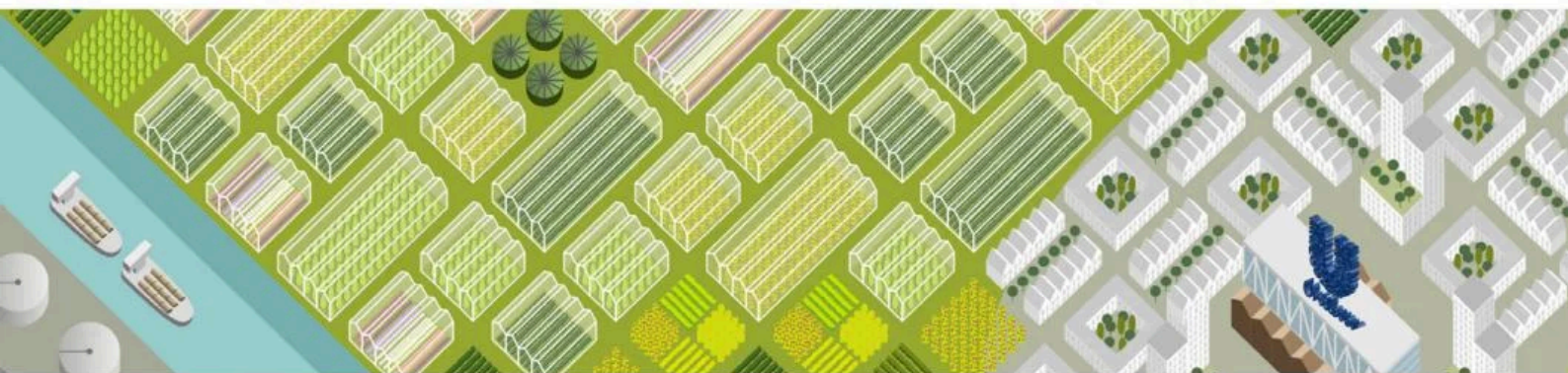
Productie & Trade



Knowledge & Technology



City & Horticulture



Biobased Products

Greenport Westland-Oostland

Building metropolitan food culture



Logistical HUB



International
Knowledge HUB



City & Horticulture



Food, Health &
Well-being

Greenport Westland-Oostland is the global center for greenhouse horticulture. It concentrates the entire chain of vegetable and flower crop production, trade and customers with associated logistics and knowledge. The area extends from the Westland to Bleiswijk and from Delft to Barendrecht is located near the major Dutch Mainports.

Businesses and governments want to continue the leading position of the Greenport to the future and develop new solutions for the fast-growing urban world population: Metropolitan Food Culture.

To build a Metropolitan Food Culture, four major economic models were investigated and their future development capabilities depicted: The Pivotal Function of **Production and Trade**, Internationalization of **Knowledge and Technology**, the Interaction between **City and Horticulture** and New High Quality **Biobased Products**. By working with building blocks the spatial development possibilities of a Metropolitan Food Culture have been envisioned and mapped.

The future Greenport is the -cooled- food storage box of Northwest and Eastern- Europe. Due to the combination of production and

trade and the refrigerated transport connections with the Mainport and Coolports, imported vegetable and fruit flows are mixed with inland production flows to complete fresh food assortments, especially for supermarkets.

Greenport's core production area is modernized and powered by sustainable a network of residual heat and CO₂ from the Mainport coupled with a decentralized and smart thermal heat grid. Smaller and older greenhouses at city borders are aimed at Urban Horticulture. Peripherally located small and old greenhouses focus on biobased production.

The Greenport's knowledge of horticulture innovation is linked with the knowledge of market innovation in the surrounding urban area. A network of local roads and public transport connects the east and west Horti campuses and R & D companies with urban education and experimental environments from north to south.

The international attraction of the Greenport is co-enhanced by excellent high-rise residential and rural nature and recreational environments in the heart of Greenport.



Potentiekaart Greenpoort Westland en Oostland

INFRASTRUCTUUR

(inter)nationale wegen
vrachtverkeer
(boven)regionale wegen
lokale wegen, kennis
netwerk internationalisering
spoor
lightrail
multimodaal knooppunt

KENNIS EN INNOVATIE

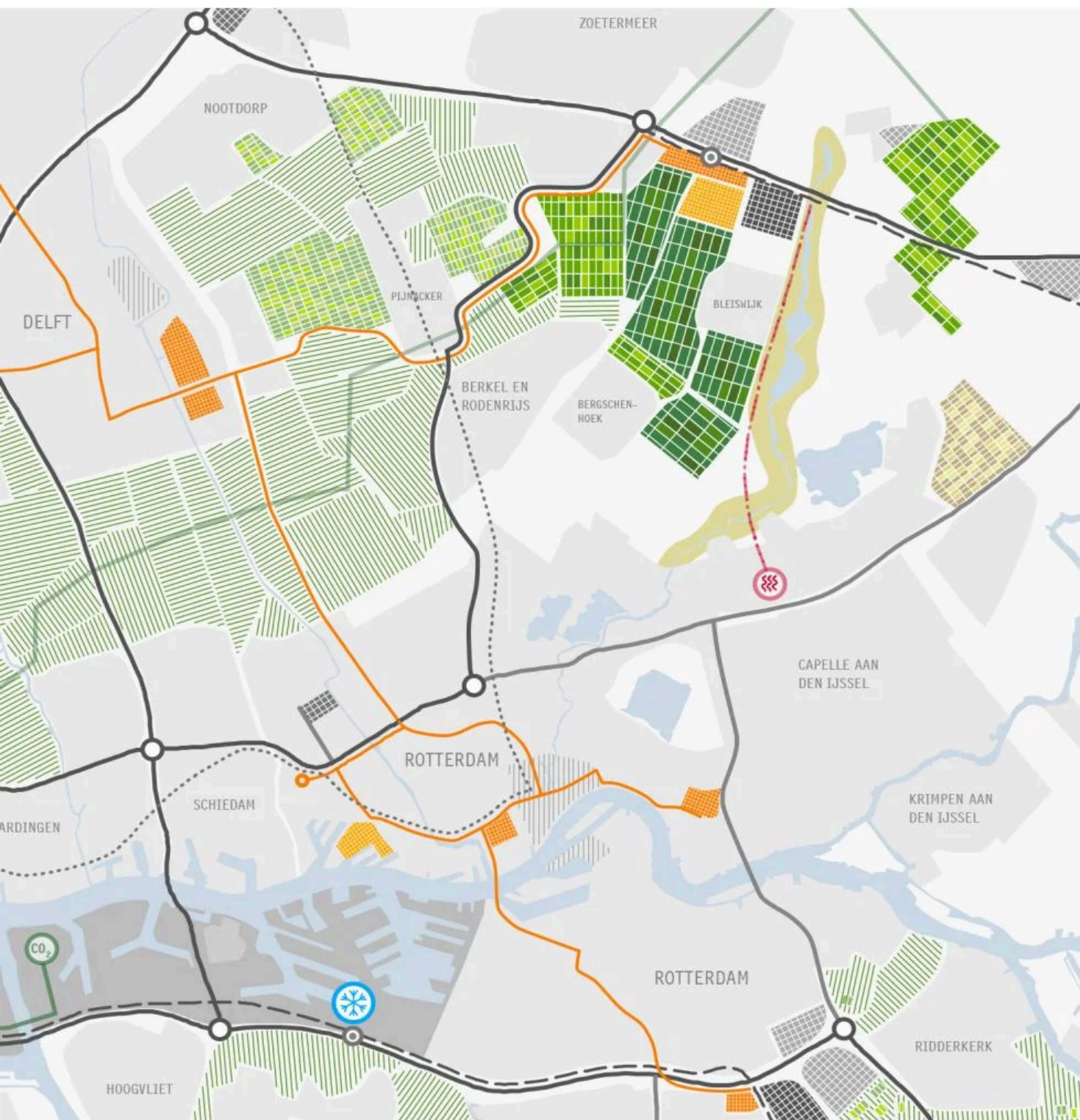
Internationalisering
Campus
Internationalisering
Research & Development
Internationalisering
onderwijs

ENERGIE EN WATER

warmtenet
CO2

WONEN

hoogstedelijk wonen
excellent wonen



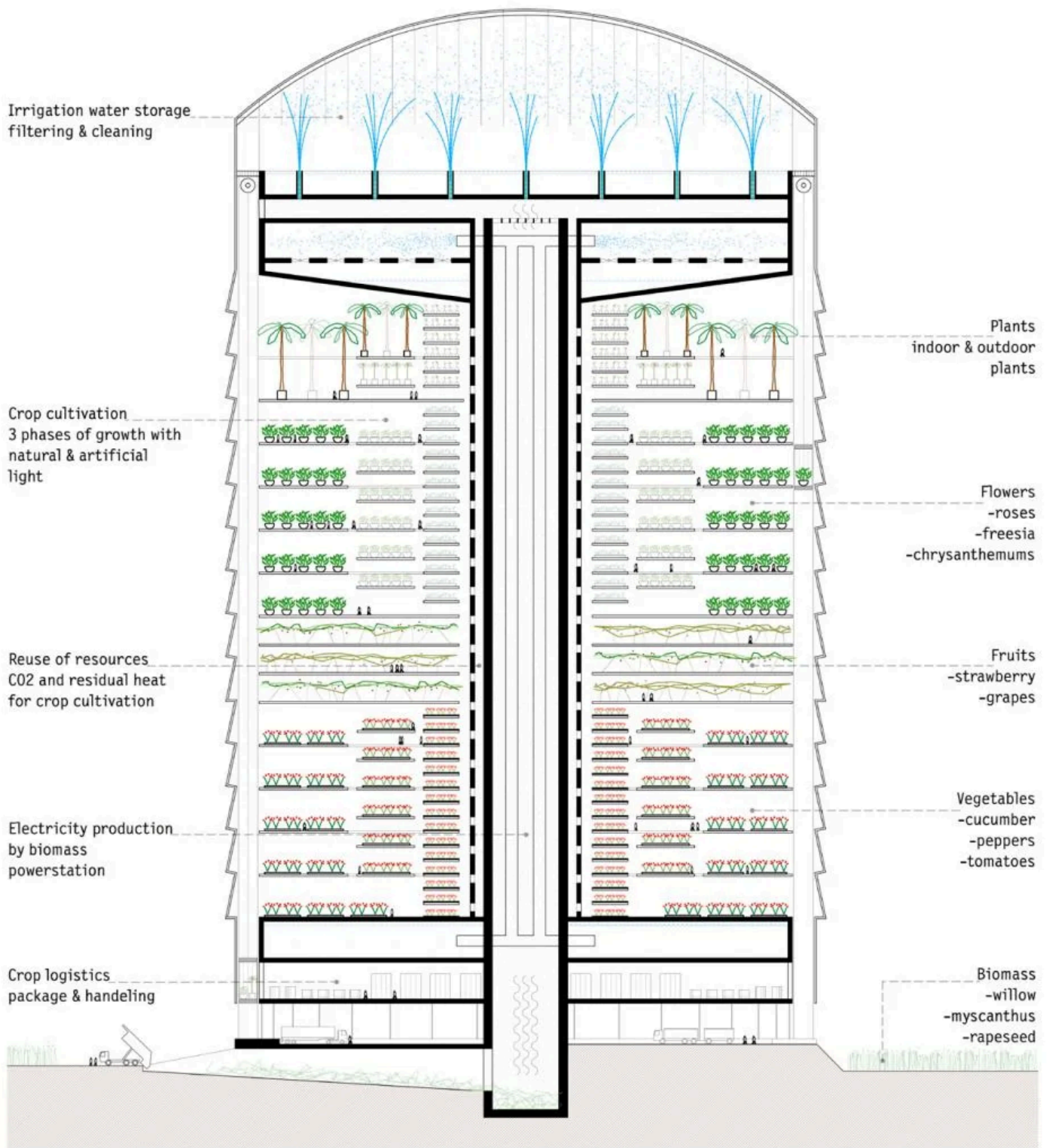
PRODUCTIE

- Draaischijffunctie zoekgebied vanaf 5 ha, jonger dan 2000, groente en sierteelt
- Draaischijffunctie zoekgebied vanaf 2 ha, jonger dan 2000, sierteelt en groente
- Stadstuinbouw zoekgebied kleiner dan 2 ha, 1980-2000, groente en sierteelt
- Voeding, gezondheid en welbevinden biobased productie onder glas zoekgebied kleiner dan 2 ha, 1980-2000, groente en sierteelt
- Groene long met landbouw, natuur en recreatie

HANDEL EN LOGISTIEK

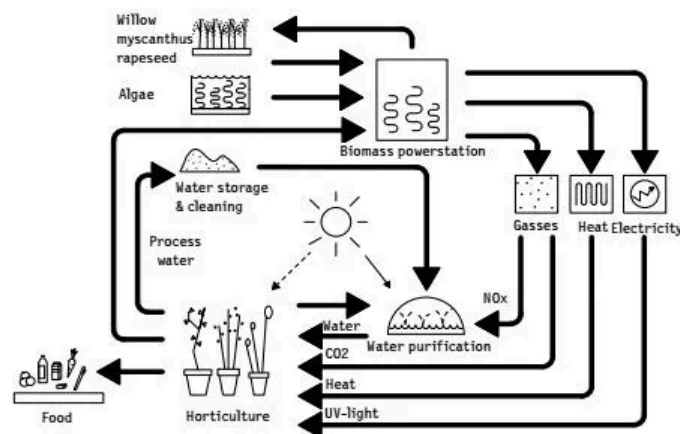
- veiling
- groothandelsmarkt
- handelsterrein
- Coolpoort
- Biopoort

1 Section Greenhouse power station



Greenhouse and Land

High-tech and Low-tech Greenport Westland



'Greenhouse en Land' is a look into the future of market gardening in Westland, a large horticultural area west of The Hague. The design philosophy sees greenhouse cultivation as no longer the focal point of a marketing system but part of a production ecology. Economically one of the areas in the Netherlands with the most potential, this agricultural region is run like a business-park and is no longer soil or climate bound. Extreme urban pressure, water problems and energy shortage question the future and the continuing development of this area as it now exists. To this end the proposal constructs a series of new typologies for nursery cultivation that engage directly with the surrounding landscape, enable a high-grade production and enhance the residential and recreational qualities of the site.

Kas Centrale - Glasshouse Power Station

This design is a symbiosis of glasshouses and a small power station - a Glasshouse Power Station. The building is to stand in areas where energy crops are cultivated. These provide the power station with the fuel it requires. The Glasshouse Power Station's ecological cycle is based on generating electrical energy. A part of this electricity is used to provide the plant material with enough light

to ensure its rapid growth. The residual heat produced when generating the electricity is sufficient to warm the greenhouses, creating a favourable balance of energy. Flue gases produced by the power station, such as carbon dioxide, stimulate the plant cultivation. At the same time the Glasshouse Power Station itself provides the water purification necessary for intensive crop cultivation by bringing together nitrogen oxide and the gases produced by fruit and vegetables in the top of the building. This and direct sunlight together create ozone, whose water-purifying effect is exploited to clean water pumped up from the storage basins. Grey residual water flows back into the storage basins where it is purified naturally.

Salt-marsh Nursery

Much drained land in the Netherlands is slowly becoming brackish as the water level there steadily drops, allowing salt water to percolate upwards. These brackish areas present a threat to conventional agriculture. The Salt-marsh Nursery is a form of field cultivation that answers the call for new products. These products are cultivated extensively in a brackish landscape.

- 1 Impression Glasshouse Power Station
- 2 Impression Salt-marsh Nursery
- 3 Impression landscape

1



2



3



1 Zoning map

2 Landscape section



1



2

Worlds

An aerial architectural rendering of a futuristic, multi-level landscape. The design features a series of interconnected, winding paths and terraces. The paths are primarily light brown, suggesting a sandy or gravelly surface, and are bordered by white, curved walls. The landscape is densely populated with various types of trees and plants, including tall palm trees, small green shrubs, and clusters of trees with pink blossoms. Several circular and rectangular water features are integrated into the design, including a large pond with a stone wall and a smaller pond with a white umbrella. The overall aesthetic is clean, modern, and eco-friendly, with a focus on integrating nature and architecture. The word "Worlds" is overlaid in a large, white, sans-serif font across the center of the image.

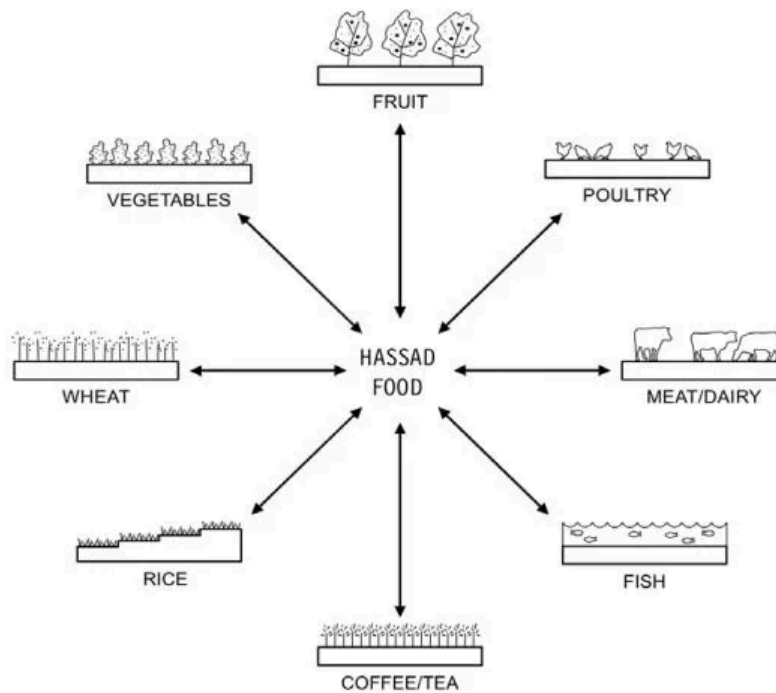
An aerial perspective of a futuristic desert oasis. The landscape is characterized by a series of white, curved retaining walls that create a series of terraced levels. These levels are filled with various types of greenery, including palm trees, small shrubs, and rows of young trees. Winding paths, some paved and some sandy, meander through the oasis. In the lower-left corner, there is a large, irregularly shaped pool of water with a sandy beach area and several white umbrellas. In the lower-right corner, there are several circular pools of water. Small groups of people are scattered throughout the landscape, providing a sense of scale. The overall design is modern and sustainable, aiming to create a lush environment in a desert setting.

of Food

High-tech oasis in the desert



Food Valley



Hassad Food aspires a showcase of its worldwide involvement in food production and processing. The company's ambition is to achieve food security for Qatar with worldwide production from horticulture, livestock, fisheries and open field agriculture providing a healthy meal for all its inhabitants. The expo is planned on a location near Doha with an agricultural programme of 3,3 hectares combined with education and lodging facilities. How to envision the client's ambition in a desert condition?

Food Valley

The building is organized around a central food valley. The food valley acts as a sunken oasis with terraces showcasing worldwide agricultural landscapes. Spaces around the valley can accommodate education, laboratories and lodging. The building can be equipped with a high technology sustainable cooling system and sweet water production depending on location/access to cold seawater.

Food Gardens

The building is organized as a carpet of covered food gardens. Each garden shows worldwide food products within their own microclimate. A 'Royal' tour through these gardens is a sensible experience of smells and flavors of the client's food products. Spaces around the gardens can accommodate education, laboratories and lodging. The building roof shades, humidifies and cools with high technologies providing a pleasant and comfortable environment.

Food Tower

A building is organized as a series of stacked landscapes. The building displays the future ambition of the clients becoming the food supplier of the Gulf region. Different floors show the latest agricultural techniques within a controlled a high tech eco system. The Food tower is situated in the metropolitan area of Doha, preferably in the vicinity of the head offices. The Food Tower accommodates educational and lodging facilities on the top floors offering the guests splendid views of Doha.

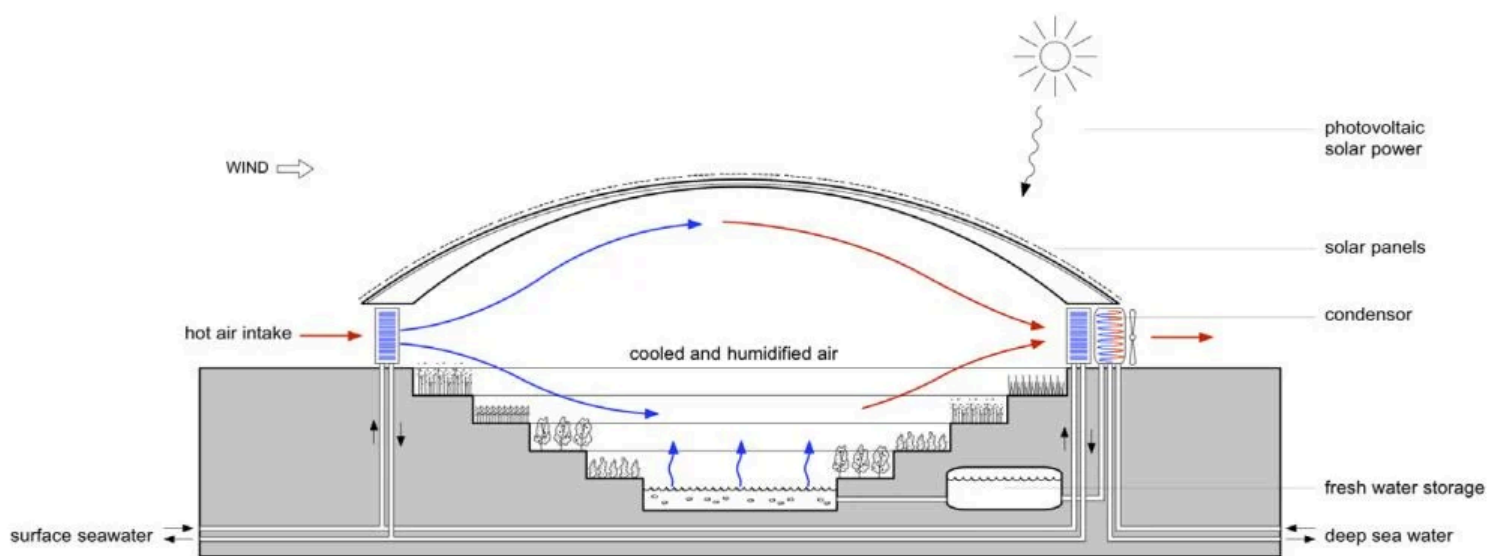
1 Exposition space | Food Valley

2 Section and climate system | Food Valley

1

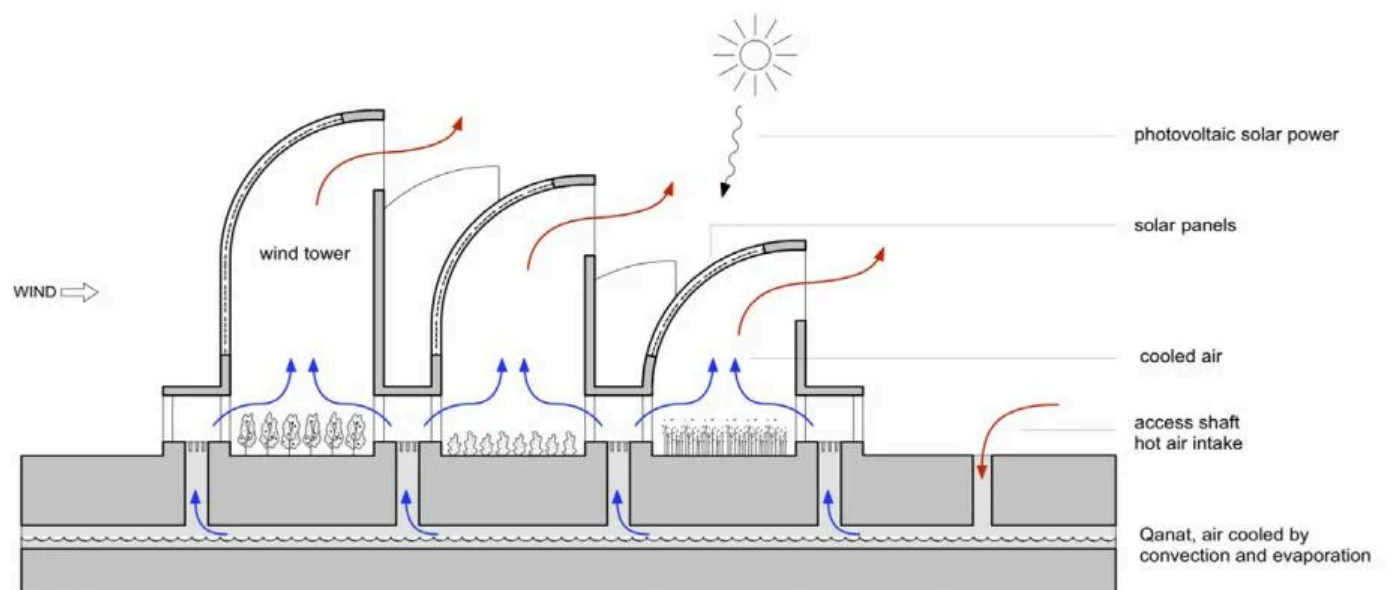


2



3 Exposition space | Food Gardens

4 Section and climate system | Food Gardens

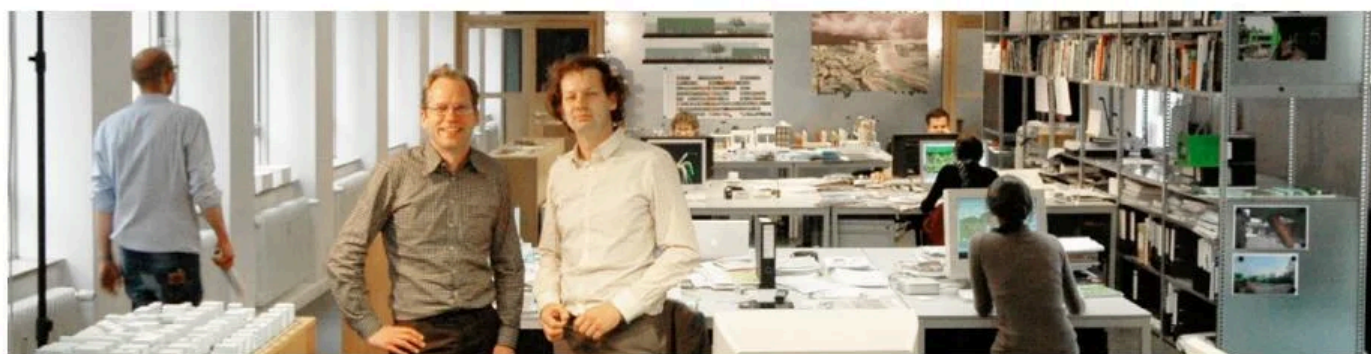




Food Gardens

The Royal walk

Food Gardens. The building is organized as a carpet of covered food gardens. Each garden shows worldwide food products within their own microclimate. A 'Royal' tour through these gardens is a sensible experience of smells and flavors of the client's food products. Spaces around the gardens can accommodate education, laboratories and lodging. The building roof shades, humidifies and cools with high technologies providing a pleasant and comfortable environment.



Van Bergen Kolpa Architects

Credits Architecture for Food

PROJECT	CLIENT	LOCATION	Advisors	YEAR
Agrotopia	Inagro Reo	Roeselare, Belgium	LEI Wageningen UR Smiemans PB Techniek Verkade Climate	2016-2019
Van Gelder Taste Valley	Van Gelder	Ridderkerk	LEI Wageningen UR	2016
Co-Housing Hoogvliet	Vestia	Hoogvliet, Rotterdam	CAE Nederland LBP Ingenieurs Schadenberg Groenadvies	2005-2009
Green Deal Urban Agriculture	Ministry of Economic Affairs Infrastructure Environment	Dutch Municipalities	LEI Wageningen UR De Volharding Breda Priva Nederland bv	2012-2013
Park Supermarket	Stroom Province Zuid Holland	Midden Delfland	Alterra Wageningen UR	2009
Flow Food Diner	Nederlands Architectuur instituut	The Netherlands	Alterra Wageningen UR Z&M delicatessen Chez-Moi	2005-2013
Oregional Plaza	Gebiedscooperatie Oregional	Nijmegen	Alterra Wageningen UR	2009
Greenhouse and Land	Prijsvraag Prix de Rome	Westland	IVAM, Amsterdam	2004
Greenport Westland-Oostland	Province Zuid Holland Municipality Westland Greenport Westland Oostland	Municipalities Greenport Westland- Oostland	LEI Wageningen UR BVR	2016
Worlds of Food	Paleisgroep Hassad Food	Doha, Qatar	LEI Wageningen UR	2012
Cofco demonstration centre	Cofco	Beijing, China	LEI Wageningen UR Niek Rozen Loos van Vliet	2013

van Bergen Kolpa Architects

Wijnstraat 96-B, 3011 TR Rotterdam, The Netherlands, +31 10 478 22 66, post@vanbergenkolpa.nl, www.vanbergenkolpa.nl

Cooperations



Research Food Production



Government



Food research



Government



Cooperative wholesale



Food and agri-business investor



Food processing, Food wholesale



Project Development



Vegetable Auction



Wholesale vegetables and fruits



Government



Urban and Landscape designers



Engineering consultants



Climate systems company



Advisor



Construction company



Agricultural Engineers



Government



Architecture research



Architecture & Art Centre



Architecture Center



Catering



Food Festival









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